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CHILDREN'S SOCIAL CONCEPTS

A STUDY OF THEIR NATURE AND DEVELOPMENT

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BY

HYMAN MELTZER

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SUBMITTED IN PARTIAL FULFILLMENT OF THE REQUIREMENTS FOR THE DEGREE OF DOCTOR OF PHILOSOPHY IN THE FACULTY OF PHILOSOPHY, COLUMBIA UNIVERSITY

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PREFACE

In these days of much and rapid reading and of impulsive responses to headlines, the danger of what Archer calls "The Great Stupidity"—the thoughtless and reckless reasoning, mostly based on silly prejudice—is real and implies a grave danger to democratic government. Seldom does an audience to whom socialism means no more than a label for what is crazy, bad and undesirable, critically judge questions which have been labelled socialistic. Actually, socialism is a tendency; to the audience here described it is nothing more than a rubber stamp that reads "no good". On the other hand, rarely does the indoctrinated socialist with his emotional complex against capitalism fail to see his stereotyped class struggle in every sign of industrial unrest.

What Professor Giddings calls "wishful thinking"—the kind of thinking that is motivated by our desires—is more apt to put in its appearance when there are specific emotions and also when there is an absence of facts. The subject matter of the social sciences, dealing with such things as the church and politics, is thoroughly emotional in character. Moreover, its facts are not well attested and still less well applied.

With the increasing difficulties of life brought about by scientific discoveries and the industrial revolution, the public is becoming decreasingly able to judge public affairs. Moreover, there seems to be a widespread indifference to social and political problems. This impassé [1] is obviously not a healthy state of affairs in a democracy.

If democratic government is to manage our industrial civilization successfully, we must substitute deliberation for prejudice, and facts for rationalizations. Realizing this, a number of forward-looking educators has set out to meet this impassé. This they are doing by the construction of social studies for use in the public schools, the materials of which are determined by more objective ways than hitherto used and the aim of which is to teach our future citizens how to face the facts and problems of life intelligently. The present study is a contribution to this interest.

[1] Robinson, J. H., *The Mind in the Making*, p. 24 and preface of all Social Science Pamphlets.

The writer wishes to acknowledge his indebtedness to the many persons who have helped in this study in one way or another. For shaping his orientation in the field of education the writer is indebted to Professors W. C. Bagley, W. H. Kilpatrick, I. L. Kandel, and F. W. Johnson, of Teachers College. His conception of human nature and behavior has been shaped by Professors R. S. Woodworth, John Dewey, E. L. Thorndike, R. Pintner, W. F. Ogburn, and A. I. Gates.

The writer wishes to express his gratitude to the teachers, principals, and superintendents who have coöperated in this study.

To Mr. J. Hockett for his ever-ready help, the writer is greatly indebted. Among the many friends to whom the writer is obliged for having given time and thought to parts of this study are: Miss Lillian V. Kahn, Mrs. Elizabeth Woods, Miss Emma Schweppe, Dr. E. M. Bailor, Dr. T. F. Lentz, and Dr. Louis Meltzer.

Sincere thanks are due Professor E. S. Evenden, who, as chairman of the Dissertation Committee, furnished guidance and help in critical moments.

However, without the suggestions, advice, help and inspiration of the man who is using his great energies to introduce and apply the creative intelligence of the "frontier thinkers" in the field of education in general, and in the field of curriculum construction in particular—Dr. Harold O. Rugg—this work would not have been undertaken nor carried out. To him the writer remains forever obliged.

H. M.

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CHAPTER I

INTRODUCTION

CONCERNING THE PURPOSE OF THIS STUDY

How we have come to have our concepts and convictions in the many fields of knowledge is a problem that has been historically traced and critically analyzed by Robinson, Dewey, Veblen, Wallas and others. In an article called "Education as Politics", Dewey reminds us that "Back of the education supplied by print and news is, in short, the earlier and deeper education which influences equally those who give out the news and those who subscribe to what is given out."[1] In the opinion of Havelock Ellis, "It is in youth that the questions of mature age can alone be settled, if they ever are to be settled, and unless we begin to think about adult problems when we are young, all thinking is likely to be in vain."[2] William James and others have expressed similar views.

This being the case, would it not be interesting and valuable to attack the problem from the point of view of growth and development in the minds of children from grade to grade or age to age? If an informed and intelligent citizenship is the primary task of education in a democracy, and if it is true that we have reached an impassé in citizenship, is it not worth while to take stock of the thinking of our children? What better way is there of doing this than by an examination of the concepts employed? What is more fundamental?

Accordingly, the primary purpose of this study is to trace the development in the minds of children of some concepts whose understanding make some important situations of contemporary life more intelligible to us. How the concepts used for this developmental study were selected; how the meanings children associate with these concepts were obtained and evaluated; what these associations show about the children's grasp of the concepts; how the grasp of the concepts correlates with age, intelligence, occu-

[1] *New Republic*, Oct. 4, 1922, p. 139-41.
[2] *Little Essays of Love and Virtue.*

pational-status, and educational age; how the grasp of the concepts is influenced by the curriculum: these are the main problems treated in Part I of the present study. There is also contained in this part a study of the relationship of talkativeness (as measured by the number of words used by children in a personal interview inquiring into their knowledge of the concepts) with intelligence and grasp of concepts.

In Part II is reported the study of the determination of the larger list of concepts from which the smaller list used for the developmental study was selected. This study was, of course, actually completed before the developmental study was begun. It is reported last because the developmental study is considered the major one. The questions or problems to be considered in Part II are:

1. What are the important concepts of contemporary economic, social and political life? What is their relative order of importance?
2. What are the modern social problems as indicated by the concepts?
3. To what aspects of life—social, political, economic—are these concepts related?

A FEW WORDS ABOUT CONCEPTS

Since this study is concerned with important concepts of social, political, and economic life, a few words about concepts—their meaning, their function, their rôle in behavior, their social significance—are in order.

The Meaning and Function of Concepts.—A succinct definition of a concept is given by Bagley, in these words: "A concept, for our purpose, is simply a meaning. It may be either general or particular in its references,—it is, in any case, ultimately a 'cue' to adjustment, or better a bundle of possible 'cues' to adjustment, the particular cue to be acted upon being determined by the situation or the problem. Thus, my concept 'water' is simply the center of a vast number of possibilities of conduct—drinking, bathing, swimming, drowning, pouring, rowing, sailing, looking at, admiring, etc."[3]

It should be remembered that a situation means a total situation, including the evolving situation. That reality is in the endless evolvings of the relating of subject and object. In the words of

[3] Bagley, *Educational Values*, p. 35.

Professor Holt, " . . . in every case we are dealing with a dynamic relation between the individual's living body as subject of the relation (or mathematically speaking the dependent variable) and of some environmental fact, as object of the relation (or independent variable)."[4]

Clarifying are the following remarks of Professor Bode: "A meaning is anything that is suggested, pointed to, or indicated by something else. The noise in the street means street car, the cloud of smoke means a fire, the falling leaves mean the approach of winter. But human beings have the capacity for detaching the thing thus suggested or indicated and treating it independently, apart from the specific setting or context. A child on the roof of a house suggests falling, but falling can be disengaged from its concrete setting and made a subject of independent interest, as when we study falling bodies in order to determine the law of momentum or acceleration. A suggested meaning thus detached and provided with a name is a concept."[5]

The most comprehensive treatment of the subject is given by Ogden and Richards in their recent book, *The Meaning of Meaning*. They set the question pertinent for our purpose in these words: "What happens when we judge or believe, or think of something: of what kind of entities does the something consist, and how is it related to the mental event which is our judging, believing, thinking?"[6] To answer the question, they have written a many-paged book. The following quotations, however, will suffice for our purpose:

"All learning by experience will illustrate the point that to be an act of interpretation is merely to be a peculiar member of a psychological context of a certain kind; a psychological context being a recurrent set of mental events peculiarly related to one another so as to recur, as regards their main features, with partial uniformity."[7]

"These psychological contexts recur whenever we recognize or infer. Usually they link up with (or form wider contexts with) external contexts in a peculiar fashion. When they do not we are said to be mistaken."[8]

As we see it, this contextual theory of meaning is not in discord with the foregoing definitions of Bagley and Bode. In fact, it

[4] Holt, *The Freudian Wish*, p. 95.
[5] Bode, *Fundamentals in Education*, p. 152.
[6] Ogden and Richards, *The Meaning of Meaning*, p. 132.
[7] *Ibid.*, p. 144.
[8] *Ibid.*, p. 145.

explains the meaning of these definitions. Bagley's "cues" to "adjustment" and Bode's "pointers", "suggesters", or "indicators" may be said to eventuate from and to be determined by the psychological context or contexts in which the concepts were experienced. The theory may be called psychogenetic, in that it treats the meaning process genetically, as a definite psychological experience, non-sensory.

There is no spontaneous generation of concepts. Without experience, there would be no concepts. Concepts are the medium which relate our past experience to a present situation, or better, they functionally relate our past experience to a present situation, they emerge from that situation with an increment of meaning, ready for the confronting of the next situation, etc. And they do not come out unchanged. It is through experience that new concepts are created, old concepts modified, revamped, enriched, or thrown overboard. At any one moment in the life of one who has had some experiences, it is his concepts which give him his footing for perception and reasoning. The perceptive reaction takes place, new concepts are thereby created—but always through experience, through perceptual activities. Reason pure of all influence of experience is a fiction. Our thinking cannot be separated from our living activities, nor can it be separated from our fund of knowledge. "No . . . mind exempt from bodily processes, animal impulses, savage traditions, infantile impressions, conventional reactions and traditional knowledge, ever existed."[9] Of concepts, experience and not any *Dinge an sich* is the dynamo.

The criticism of James and Bergson to conceptual thinking, we think, applicable only to concepts fabricated and logically constructed—to concepts based solely on "book learning" and not at all on actual investigation or experience. The concepts of contemporary life, however, are not such; they are "pregnant with concrete daily living."[10] This is to say that the concepts of dynamic thinking are psychological—are not governed by logical construction but based on facts. And a fact, as Dr. Kallen puts it, is "not a pre-existing thing to which a conception must conform, but an eventual thing."[11] Psychological concepts, therefore, are not immobile, immutable, but change with change. They are thought and they are tools of thought. In short, "concepts are not formulated but formulating experiences."[11]

[9] Robinson, *The Mind in the Making*, p. 34.
[10] Follett, *Creative Experience*, p. 281.
[11] *Ibid.*, p. 144.

The Rôle of Concepts in Everyday Behavior.—In a dynamic society requiring endless readjustments specific controls of conduct, such as we have in habits, are necessary. But though necessary, they are necessarily insufficient. In a society where "such far-reaching transformations are experienced in half a lifetime"[12] there is great need for more adaptable conduct. Because of this, interest attaches to anything that makes conduct adaptable. "Makes conduct adaptable" is just what concepts do. Therein lie their social significance.

Reflexes, instincts, emotions may be the mainsprings of action but they are not the sole determinants of our everyday behavior. Hunger, the instinctive tendency to eat, for example, does not determine where, what, nor how we eat. The hunger instinct does not determine the kind of food we eat at any given time. It does not determine our eating-place—club, hotel, restaurant or home. It prescribes no table manners. Habits and attached meanings determine these things. We have formed the habit of eating at X because it means a clean eating-place, or a cheap place, or a place where we can have the pleasure of desirable company. "We avoid a mud puddle, not because we are born with a reflex for mud puddles, but because it means wet feet; we reach for the apple because it means something to eat; we take our umbrellas because it looks like rain."[13]

Our reactions to confronting political, economic or social situations are largely determined by the meanings the situations have for us at the time—by the "pictures in our heads," to use Lipman's expression. The pictures in our heads affect our thinking and our acting; they include what we know and what we think we know. They include all meanings—right or wrong, clear, confused, or stupid. Psychologically, that is, a wrong concept is as truly a concept as is the right one.

Many people supported Coolidge for President—not because of any groping instincts, not because they had a clearer picture of him in mind than of the other candidates—but largely because to them the election of Coolidge meant prosperity and economy. Mrs. Brandeis supported La Follette largely because to her La Follette meant a fight against "the imperialism of the capitalist." President Hibben supported Davis largely because the election of Davis meant to him the most assured way of our joining the League of Nations. So with other political, economic,

[13] Ross, *Social Psychology*, p. 79. [12] Bode, *Fundamentals of Education*, p. 151.

or social situations; our reactions are largely determined by the meanings the situations have for us. Right or wrong, they are guides to action.

The Social Significance of Concepts.—According to Ward, "A culture is a social structure, a social organism, if any one prefers, and ideas are its germs. These may be crossed or mixed, and the effect is the same as that of crossing hereditary strains. . . . the cross fertililization of cultures is to sociology what the cross fertilization of germs is to biology."[14]

The quotations from Ward bring out in a rather picturesque manner the social significance of concepts as it appears to a sociologist. They are not given as statements of facts to be interpreted literally; for so interpreted they merely illustrate what Allport calls the "biological form of the group fallacy."[15]

Anthropological evidence shows that "Wherever society furnishes copies and stimulations of a certain kind, a body of knowledge and a technique, practically, all its members are able to work on the plan and scale in vogue there and members of an alien race who become acquainted in a real sense with the system can work under it. But when society does not furnish the situation, or when it has preconceptions which tend to inhibit the run of attention in given lines, then, the individual shows no intelligence in these lines."[16]

The arrested development of the Mohammedan people, their failure to progress, for example, does not argue a lack of intelligence as it does preconceptions and a lack of real culture contacts whereby "divergent idea-germs are first hurled promiscuously together and then rudely jostled and stirred into a heterogeneous menstrum that tends to polarize on the social spindle, but ultimately blends."[17]

Preconceived Ideas as Counterfeits of Reality.—That our perception at best is far from perfect, is now a psychological fact that is well known. Startling proofs of human fallibility in this respect have been demonstrated time and again in courts, classrooms and laboratories. That being the case, it stands to reason that we cannot afford to distort the process of perception any further. Yet this is just what preconceptions do. They distort the process of perception and prevent the individuals influenced by them from seeing things as they really are. More, precon-

[14] Ward, *Pure Sociology*, p. 235. [15] Allport, F. H., *Social Psychology*, p. 9.
[16] Thomas, *Source Book of Social Origins*, p. 169. Boaz expresses a similar view on page 181.
[17] Ward, *Pure Sociology*, p. 236.

ceptions are hardly ever critically examined by those influenced by them. And thus, the victims are myopic without knowing it. Their behavior then becomes responses to situations not as they are but as they think they are. They are reactions not to reality or a true sampling of reality but to an environment imagined, a pseudo-environment.[18] But their reactions take place in a real environment. Thus are preconceptions counterfeits of reality.

In the words of Havelock Ellis, "We cannot remain consistent with the world save by growing inconsistent with our own past selves. The man who consistently—as he supposes 'logically'—clings to an unchanging opinion is suspended from a hook which has ceased to exist. I thought it was she and she thought it was me, and when we came near it weren't neither one of us—that metaphysical statement holds, with a touch of exaggeration, a truth we must always bear in mind concerning the relation of subject and object."[19] Stereotyped meanings serve as false symbols or signals—are counterfeits of reality. They are concepts kept away from contact with facts.

The trouble with conceptual stereotypes is that they are blueprints—fixed, static, permanent, unchanging—of changing, evolving situations. Concepts that evolve with the evolving situation are necessary for an understanding of changing situations. The application of stereotypes to swiftly changing social situations is an anachronism. With static concepts we can prove unchanging geometric propositions but we cannot solve the problems of life. Life is a challenge. And the knowledge of life is a series of problems to be solved, not propositions to be absorbed. For the understanding of life in a dynamic society, dynamic thought materials are the instruments that serve.

[18] Lipman, *Public Opinion.*
[19] Ellis, *The Dance of Life*, p. vi.

PART I

A STUDY OF CHILDREN'S SOCIAL CONCEPTS —THEIR NATURE AND DEVELOPMENT

CHAPTER II

MEASURING THE DEVELOPMENT OF CONCEPTS

PRELIMINARY STATEMENT

Stated in general terms, the major purpose of this study is to discover just how some cue concepts (basic concepts of contemporary life) are developed in the minds of children. This does not mean that we hope to find regular, direct, step-by-step growths which can be described and defined once for all. Development is continuous. The stages of development, therefore, cannot be differentiated absolutely. Characteristics supposedly typical of an earlier stage will often be found at a later one. "Development," in the words of Hobhouse, "involves an ever renewed synthesis of divergent, potentially conflicting characters at a higher level."[1] Besides, as Thorndike likes to remind us, "Inner growth acts differentially according to the original nature that is growing."

The trend is away from the point of view which considers a law as a cause of, that is, as a force which compels an action. Laws do not govern activities; they describe and interpret them. A law is a statement of the results of observation, a succinct summary of observed relations. Association and correlation are replacing causation; probability is replacing certainty. Accordingly, in our present study, we plan to contribute towards a fuller understanding of the development of cue concepts in the minds of children by discovering the meanings children of various grades associate with the concepts, by investigating the nature of the meanings children associate with certain concepts and by correlating the children's grasp of these concepts with intelligence, occupational status of parents, educational age and other conditioning factors.

[1] Hobhouse, *Social Development*, p. 306.

Before we attack these problems, however, we must (1) select a list of concepts, (2) obtain a satisfactory instrument for tapping the minds of the children for the ideas they have concerning these concepts, and (3) devise a method of measuring the children's comprehension of the concepts.

THE CONCEPTS

The list of the concepts was selected from the larger list determined by a study[2] of 112 issues of critical magazines spread over a period of five years, and four books. The concepts were selected so that in the list would be included some from the various aspects of society—social, economic, political—some from the various modern problems, such as politics and government, world affairs, industry, etc.; some more particular concepts, such as Trade Union, Monopoly, Wage Earner as well as some more general concepts, such as Democracy, Liberalism, etc. Concepts which are used in two or more distinct meanings were omitted. An example is Nationalism. This is perhaps most frequently interpreted in terms of a national consciousness, considered, as defined by McDougall, as an extension of the "self-regarding sentiment" to include the entire nation. It is also used in a way which implies a "group" mind. And, moreover, is used by Bellami and his followers to mean collectivism on a national basis. That is why it was not included in the list, though it ranks higher than many of those selected. Another such example is Strike.

These considerations explain the inclusion on the list of concepts with rank orders greater than thirty-one. Of the thirty-one concepts selected for the developmental study more than one-half have rank orders of thirty-one or less. Other things being equal, that is, the concepts selected are those with higher rank orders.

The criticism that this list is not complete and should not be the sole basis of a social science curriculum—which it was never purposed to be; for facts must ever be complemented by reasoned judgment, by "the light of the idea"—is not relevant here. What does matter, for our present purpose, is that the concepts be important and have social significance. That they satisfy these requirements is evidenced by their presence in the larger list from which they were selected.

The concepts selected for the purpose of examining children's knowledge of and ability to think with social science materials follows.

[2] See Part II of the present study.

LIST OF CONCEPTS FOR INDIVIDUAL TESTING

1. Democracy
2. Socialist
3. Big Business
4. Imperialism
5. Capitalist
6. An Industrial Country
7. An Interdependent World
8. Americanism
9. Wage Earner
10. Prime Minister
11. Balance of Power
12. Standard of Living
13. Liberalism
14. Militarism
15. Conservation of Natural Resources
16. Contitutional Government
17. A Centralized Government
18. Trade Union; Labor Union
19. Radicalism
20. Aristocracy
21. Division of Labor
22. Anarchist
23. Conservative
24. Foreign Trade
25. Open Shop
26. Monopoly
27. Public Opinion
28. Large Scale Production
29. Patriotism
30. Personal Rights
31. Industrial Revolution

A TECHNIQUE FOR DISCOVERING THE MEANINGS ASSOCIATED IN THE MINDS OF CHILDREN WITH THE CONCEPTS

It is a psychological fact that at any given time there is more in the mind than can be stated in intelligible terms. How can we best tap the contents of the mind so that we may discover what children know about our list of concepts? In other words, we want to know: What does a child of a certain grade of a certain age, after a certain training, coming from a family of known social status, know about our list of concepts? Age, grade, social status, and training is information that can be had for the asking. The level of intelligence can be determined by an intelligence test. The part of the procedure that remains undetermined is: How can the children's "grasp" of the concepts be obtained and measured? To answer this question many techniques were considered, a few tried out, and finally one selected.

Instruments Considered but not Used.—Confronted by the need of measuring a mental function what more natural, in these days of much intelligence testing, than that our mind turn to devices and schemes used by the makers of intelligence tests. Our first plan, therefore, was to construct a test having elements in it of which the following are samples:

SOCIAL SCIENCE REASONING TEST

A. In each line, cross out the word that does not belong there.

1. Oligarchy, monarchy, aristocracy, monopoly, autocracy.
2. Strikes, closed shop, waterways, open shop, lockout.
3. Division of labor, specialization, colonization, standardization, large scale production.

4. Wage system, industrial country, cities, handwork, machinery.

B. In each line, draw a line under the one word in the parentheses which is related to the third word as the second is related to first.

1. Reactionary: radical = conservative: (republican, democrat, liberal, socialist, nationalist).
2. Democracy: people = autocracy: (mob, society, nobility, superiors, single sovereign).
3. Capitalism: private ownership = socialism: (corporation, partners, philanthropy, imperialism, communal ownership).

C. Mark P before those words or phrases that describe a state or condition that existed before or was in part the cause of the Industrial Revolution. Mark an R before those that were in part results of the Industrial Revolution. Mark an N before those that are not related or causally connected with the Industrial Revolution.

1. Factory System
2. Craftsman
3. "Putting Out System"
4. Revolutionizing Inventions
5. Capitalism
6. Drift to City
7. Strike
8. Commission Form of Government
9. Specialization
10. Location of America
11. Election of President
12. Sale of *Main Street*
13. Hargrave's *Spinning Jenny*
14. Division of Labor
15. Wage Worker
16. Apprenticeship
17. Industrialism
18. Labor Unions
19. Lockout
20. Bolshevism
21. Climate of Europe
22. Discovery of Steam Engine
23. Rainfall of the United States
24. Concentration of Population

These and similar elements were finally rejected because they proved to be on a mental level too high for public school use. A test made up of similar elements but simplified could serve as a Social Science Reasoning Test. At present, however, we are more interested in discovering the meanings which the concepts have for children. And for this purpose, these elements will not serve.

Group Information Test.—By a consensus of opinion of the Social Science Group[3] it was decided that the need for a straight information test was more urgent. Such a test for all 31 concepts was constructed by the writer. A few examples will suffice to show the nature of its make-up.

GROUP INFORMATION TEST[4]

Mark R before all correct answers.
Mark W before all wrong answers.

Draw a line under the one answer that you think best and most complete.

1. Democracy:
   a. Is a period of history that came after monarchy.
   b. Means all men are born free and equal.

[3] The Lincoln School group who participated in the few conferences held to discuss parts of this study. Composition: Dr. H. O. Rugg, J. A. Hockett, Elizabeth Woods, Emma Schweppe.

[4] It was purposed to use this test as a supplement to the Association Test which will be described later. It was not used in the present study because the personal interview was discovered to be more revealing than was expected and took more time than was planned for. The Social Science Group, however, have it in mind to use an instrument of the nature of this one in the near future.

c. Is based on faith in the people.
d. Requires all the people to do the same thing in the same way.
e. Means life, liberty, and the pursuit of happiness.
f. Desires a tyranny of the majority.
g. Desires majority rule but minority freedom.
h. Is a government of the people by the people.

2. Big Business:
   a. Means government ownership of business.
   b. Means lots of customers, lots of workers.
   c. Means mass production of standardized products.
   d. Means small production of large products.
   e. Means a lower cost of production.
   f. Means lower retail prices always.
   g. Could not be without the railroad.
   h. Means big and good times for the wage earner.

Mark a cross (×) before the best of the five answers.

1. A Socialist:
   a. Is one who leads people in rich society.
   b. Is one who makes speeches on public life.
   c. Wants communal ownership of land and capital.
   d. Is a capitalist.
   e. Must be a Bolshevik.

2. Liberalism:
   a. Aims to take liberally, to take all it can.
   b. Wants to instil in the younger generation more love and respect for the trade and social position of the parents.
   c. Favors easy government.
   d. Favors democratic reforms and progressive measures that do not involve fundamental changes in the existing order.
   e. Pays too much wages and goes bankrupt.

Because the points raised at the conference of the Social Science Group held to consider this test and its construction are apt to show their appearance whenever the construction of a similar test is undertaken, they will be discussed briefly here.

1. *Definitions used should not be absurd.*—The majority opinion of the Social Science Group, as well as that of the Educational Psychology Seminar for the school year 1923–1924, was to the effect that this rule was neither reasonable nor justifiable. Some of the reasons given are: (*a*) What may appear absurd to one person, may not, to another. (*b*) What seems absurd to the adult, may seem sensible to the child. (*c*) What appears absurd at a high level of mental development, may appear reasonable at a lower stage. Psychologically, that is, absurd meanings are as important as are verified meanings. These reasons considered, it follows, that we cannot omit absurd answers. Or at most, we can omit only those absurd answers which we know will not be given by children; meanings that children do not have.[5]

It may be added here that, as evidenced by the responses given

[5] The wrong responses used are modifications of those given by a Lincoln School class in social sciences.

by the children, hardly any notion is too absurd for some children to have.

2. *Definitions used should not be humorous.*—The reactions to this suggestion were very similar to that of 1. The definitions, that is, should be no more humorous than would be given by a sufficient number of children to be tested.

3. *Definitions should not be colored by emotions of any kind.*—This is not sound psychologically. Emotions influence thought and action. Some emotional excitement is produced by any mental activity. The more certain our knowledge is, the less is it apt to be colored by our emotions; the less apt are we to react to a pseudo-environment made up in part by our emotional thinking. The more proficient any individual becomes in his field of work, whatever it be, the less does his behavior in his work show signs of being colored by emotions. As Thorndike expresses it, "The natural selection and elimination of methods of mental work which goes on in successful workers seems to eliminate emotional excitement."[6] Therefore does it follow that as a rule in the construction of a psychological test purposed to tap the contents of the mind "should not be colored by emotions of any kind" is not adequate or reasonable. The most we can say is, that the definitions used should not be more colored by emotions than would be those given by a sufficient number of children to be tested.

4. *Definitions used should be absolutely straightforward and clear.*—All members of the group agreed to this suggestion.

5. *Definitions should be given in pairs of opposites the affirmative and the negative.*—This was voted down by a majority of the Group. Some of the reasons given are: (*a*) It introduces a 50–50 chance factor; for a question is either right or wrong. (*b*) It gives a mind-set for a selection of right from wrong and not for a separate treatment of each response. (*c*) It limits, unnecessarily, the mental function being tested. (*d*) "The habit of indulging in sharp but facile dichotomies is probably the most serious error into which we can fall."[7]

6. *Definitions should be undeniably right or wrong.*—This was acceptable to the group. Undeniably as here interpreted however, means no more than common agreement of competent students.

Group Association Test.—Says Stern, "Spontaneous conduct has

[6] *Educational Psychology, Briefer Course*, p. 217.
[7] M. R. Cohen quoted by Robinson, *Principles of Reasoning*, p. 64.

the advantage of revealing to us the character of the child much more clearly than do reactions, for the child behaves naturally and is not under the constraint of a momentary command; consequently it often reveals quite surprising aspects of its being which we could never have perceived by the aid of deliberately planned and experimental methods of investigation and which, indeed, are not accessible to such." [8]

Under the influence of this line of thought a test was tried out which, though less easily scored, would be less rule-bound and more natural than the tests which have been described previously. In this test, the examiner, after reading and showing the class a card of the concept, instructed the pupils of the class to write all the ideas that came to mind when they thought about the concepts read and displayed.

A trial on a Lincoln School social science group brought out the fact that this test did not yield the expected results. The responses given were not as natural nor the product as revealing as was hoped for. In spite of the specified directions and frequent reminders given the pupils to the effect that they should respond with ideas as they came to mind, the answers showed almost as much constraint as is found in the most rigid group test. Though frequently advised that words or phrases, if they expressed their ideas, would be preferable to complete sentences grammatically constructed, by far the majority of the pupils stuck to the use of complete sentences. This sometimes resulted in by-paths—in the writing of associations to the responses rather than to the original concept. It sometimes resulted in a "set" for the writing of a composition. Other responses revealed nothing more than an attempt to evade the admittance of ignorance through the use of generalities or other meaningless expressions. The use of the one-minute time-limit introduced another factor—the question of the effect of comparative speed on different pupils—which did not work well for the purpose in hand. All in all, it can be safely said that this method did not elicit the ideas that are most closely associated with the concepts in the minds of the children.

THE METHOD USED IN THIS STUDY

The Personal Interview.—Personal Interview is the name that best describes the procedure used in this study. It is of the nature of an association test in that it "dips into the general mass of

[8] *Psychology of Infancy*, p. 12.

the individual's associations formed at various times and under varying conditions; with varying degrees of frequency, recency, vividness, emotional and intellectual value; and all of these conditions vary from one another." [9] It is not a free association test, nor is it a controlled association test in the usual psychological sense of the term. It is a trifle more controlled than the Freudian Free Association Test. More pains is taken by the examiner in seeing to it that the subject adheres to what the logicians call the "universe of discourse".

DIRECTIONS FOR THE INDIVIDUAL TEST

We want to find out what certain words mean to children of different grades. I will read you these words one at a time. It will be your job to speak out all the ideas that come to your mind when you think of the words I read. Do not make any extra efforts to express your ideas in complete sentences. Words, phrases—if they express your meanings—will do just as well. Express your ideas as they come to you. What does [name of concept] mean to you? Tell me everything [name of concept] means to you.

INSTRUCTIONS TO EXAMINERS

Some suggestions for the personal interview:

1. Write name, age in years and months, grade, parent's occupation in bold type on top of first page.

2. Be sure to get the first response given by the child, no matter what it is or the form in which it is given. Remember a wrong concept is psychologically just as truly a concept as is a correct one. If the idea is expressed in form of a question mark it is so that we can know it was so presented.

3. The responses will be analyzed into wrong and right responses; be sure not to miss any.

4. Don't accept generalities without further questioning. Follow up and see what the child means, if anything.

5. Don't fail to mark the question you ask.

6. Ask no questions until the child has been given ample chance to respond to the first stimulus.

7. Be careful of the mind-set you give the child in questioning. A few *don'ts* in this connection:

   (1) Don't say "Go ahead" if the response preceding this direction was wrong; say instead, "Any other ideas?" "Does it mean anything else to you?" "What else does it mean to you?" or "Does it make you think of anything else?"

   (2) Don't in the first main direction instruct the pupil not to talk too much or not to beat around the bush or say, "I don't know if you don't know," or some such expression advising against circumlocution but, instead, stick to the instructions given and if later the case at hand happens to be of the circumlocuting variety, suggest the undesirability of such behavior by an expression like the following: "But that is the same idea as ....., isn't it? What else does it mean to you?"

8. Certain individuals have a mania for a certain word, phrase, or idea and use it no matter what the concept asked for is. Underline such ideas.

[9] Wells and Woodworth, *Association Method.*

9. Underline and briefly trace, if you can, out of boundary statements, *e.g.* peculiar twists given certain concepts.
10. Finishing in the shortest time is no adequate measure of your efficiency in this work—getting the information needed is the important thing.

The following facts can readily be inferred from the foregoing directions and suggestions.

Each child was tested individually.

The child talked.

The examiner did all the writing.

No time limit was set.

The child was given every chance to say all he or she knew about every concept.

Generalities lead to further questioning by the examiner.

The child was given ample chance to respond to the directions before other questions were asked him by the examiner.

Scoring the Product.—These tests were not given to determine marks. Teachers do so much marking of papers, that, were our pupils' papers submitted to a large staff of public school teachers most of them, no doubt, would immediately go to work, score the papers and stand ready to announce the "marks" and tell us which pupils should be promoted and which should be failed. For our purpose it is more important to know the ideas children have of our list of concepts and to undertake to penetrate into the nature of these ideas than it is to know their marks. And if ideas are of primary importance, why not set down the ideas in some brief form and then analyze the product into the number of ideas given, correct and incorrect, instead of judging the result and marking the contents as a whole. This is the line of reasoning that is responsible for the method of scoring used in this study:

The responses to each concept were analyzed into and scored for these elements:

1. R = The number of correct ideas.
2. W = The number of wrong ideas.
3. C_2 or W_2 = Number of "half-baked" ideas; confused ideas.
4. I = Total number of ideas.
5. E_C = The number of correct examples.
6. E_W = The number of wrong examples.
7. A = The number of responses; sentence stops as marked by examiner.
8. W = The number of words used to explain each concept.

9. Numerical score used as measure of a child's grasp of the concepts as described on the first page of Chapter VI.

Counting Ideas.—This is subjective only to the extent that what one person may call an idea, another one may not. Subjectivity is not a valid criticism in this instance; for a knowledge of the concepts makes for agreement here.

Another criticism that may be raised against this system of scoring is that any idea is marked as equal to any other idea; the more significant idea is not given more weight than the less significant one. Remembering that an idea not entirely grasped or a correct idea partly confused or what may, for short, be called a "half-baked idea" is counted not as one idea but as a half, C_2 or W_2, as the case may be, and remembering also the fact that these concepts were all previously analyzed into many possible right and wrong responses selected from the answers of the papers of about fifty children on a group association test previously described and the further fact that the selected responses were checked by a competent social science student,[10] the criticism that significant ideas are not given their true weight does not hold. For, as a matter of fact, only significant responses with meanings were credited positively. Generalities, such as American Principles as a response to Americanism—as can be ascertained by a glance at the instructions given the examiners—were not accepted as final answers but led to a follow-up question on the part of the examiner, such as, " . . . . and what does [given generality] mean to you? "

The Children Examined.—Three hundred and thirty-three pupils from the fourth grade through the high school of schools located in Bayonne, New Jersey, Passaic, New Jersey, Jersey City and New York City were examined by the Personal Interview. Only two pupils from the fourth grade were tested; for the results showed that it was not worth while. It is in the fifth grade that the meanings needed for a grasp of these concepts begin to emerge in a form that can be measured by our technique. The distribution of the pupils tested through the grades follows.

Grade.....	IV	V	VI A	VI	VII A	VII	VIII	Terman	IX	X	XII	Total[11]
No. of Pupils...	2	50	4	50	4	54	53	4	50	39	23	333

[10] Miss Emma Schweppe, The Lincoln School, Teachers College.

[11] A after the grade, means the lower half of the school grade; those unmarked are from the upper half of school grade. The Terman group is from a special opportunity class of a New York Public School doing seventh and eighth year work.

Advantages of the Personal Interview.—For the purpose of discovering just what ideas pupils have of our list of concepts and of penetrating into the nature of these ideas, this method has many advantages over any other procedure considered. These may be enumerated, in brief, as follows:

1. The situation is less restrained.
2. Children's oral responses are more natural, less artificial and more informal than are the written responses.
3. Because of 1 and 2 the reactions are more spontaneous and natural.
4. Gives the examiner a chance to investigate through further questioning any generalities given as answers.
5. Gives the examiner a chance to investigate through further questioning all forms of evading responses.
6. Brings to light what some logicians call the *field ideas*—ideas we think with before we think of them; ideas which constitute the background of all thought.
7. It gives the examiner a chance to find out the "why" of some rare answers.
8. Because of 4, 5, 6 and 7 the responses given are more meaningful and easier to interpret.
9. All in all, it yields not only more meaningful but also more revealing responses than any of the other methods considered.

Disadvantages of the Personal Interview.—The first disadvantage this test has is one that all individual tests have in common as compared with group tests, i.e., time. In the time it takes to test one child by this method, a class of children can be tested by a group test. For a study whose chief interest is in gaining insight into the development of cue concepts in the minds of children, considering the present status of our knowledge about the subject, the increment of meaningful and revealing materials obtained by this more clinical method is worth the difference in time. The only real difficulty introduced by this procedure is that of scoring. There is no standard technique for scoring a partially free association test—associations given as responses to the naming of a concept, associations yielded by the procedure herein described as the Personal Interview.

CHAPTER III

THE MEANINGS CHILDREN ASSOCIATE WITH VARIOUS CONCEPTS

More important than a mark obtained by any system of scoring, in our present stage of the study, is a knowledge of the actual meanings children have of the concept—the kind of things they think about when the concept in question is mentioned by the examiner. These are more important because they are more meaningful. From the responses of the children in the Personal Interview this information can readily enough be obtained. To print the responses of all the children tested in full is, however, impossible. Instead, therefore, we plan to select from the responses of each child to each concept what may be called the core of the idea. By this we mean the idea—frequently given first—which instigates the thinking that brings out the other associations, or enough of the response [as given in full] to give one a fair idea of the context of the whole. It is enough to give the clue for what logicians call the "inferential whole" or "implicative system". This core of the idea may be looked upon as containing the essence of all the other meanings given. All else is for the larger part commentary, though frequently very illuminating commentary.

A grouping of the cores of ideas whose referents are identical, or nearly so, as presented in the following pages, will yield this information about each concept: (1) The percentage (*a*) of the public school children tested (221), (*b*) of the high school children tested (112), and (*c*) of the total number of children tested (333) to whom any given concept means any one of the fifteen or ten most frequent responses; (2) a sampling of some of the other meanings given to some of the concepts.

CHILDREN'S CONCEPTIONS OF DEMOCRACY

Cores of Ideas of the 15 Most Frequent Responses	Per Cent of Public School Children	Per Cent of High School Children	Per Cent of Total No. of Children
1. Government by the people	19.80	50.70	33.00
2. "Don't know"	17.60	---	11.80
3. Freedom, happiness, equal rights	6.35	7.28	6.64
4. Form of government—not king	5.44	5.45	5.43
5. People vote	6.35	1.82	4.83
6. Freedom of liberty—not captured	4.98	3.64	4.53
7. Republican government	4.98	1.82	3.63
8. Democratic party	4.07	.91	3.02
9. Government of people+implications	2.72	5.45	3.62
10. Rule by king	1.35	.91	1.22
11. Free country	.45	3.64	1.15
12. Free speech, liberty	.45	1.82	.91
13. Fight for it—be good American	.45	1.82	.91
14. Democrats are for high taxes	.45	1.82	.91
15. Intelligent, smart	.90	---	.61

Some of the other 67 meanings which the children who were examined associate with Democracy are:

Aim of the people of the United States.
No war, peace, union.
Patriot.
Stick together, united.
People in politics.
Rule by one.
Kinds of peace.
To be true, honest.
Equalization of classes, opposed to militarism.
Longed for by the people.
Have something to do with the capital.
Government is democratic—other kind is republican.
Just one idea but a good one.
Try to rule the world—Germany.
Bunch of people at a meeting.
Government by the American people.
Good government.
Right.
Governor of state.
Trying to get money.
People should not fight.
Some kind of law.
Something written, used by the people.
Rule must be made safe.
Political party—Bolshevist.
Save world to have president.
Majority rule.
Treat others equal.
Manufacture things.
People of age have say in government.
Way of living—period after democracy.
A place—a land.
Saying something.
Point of view—mix regardless of race.
Vote for Democratic president.
Better living—steps.
People fight for country.
Friendly, do favors.
State government.
Right to speak of Government.
Free people.
Free government—do everything, except crimes.

CHILDREN'S CONCEPTIONS OF SOCIALISM

Cores of Ideas of the 15 Most Frequent Responses	Per Cent of Public School Children	Per Cent of High School Children	Per Cent of Total No. of Children
1. Does lots of social duties goes to parties, etc.	32.00	7.28	23.80
2. Political party; election party, etc.	11.30	21.80	14.80
3. Want equal rights for workers; no rich classes	5.90	6.35	6.05
4. Wants an equal distribution of wealth	2.26	6.35	3.68
5. A labor political party for workers	1.82	2.72	2.11
6. Public ownership of utilities; government control of trade	.45	4.54	1.33
7. Want people to have more say—more democracy	---	3.64	1.20
8. Wants shared profits in industry	---	3.64	1.20
9. Party wants to overthrow the government	.91	2.72	1.20
10. Want manufacturing to be controlled by the people, are against capitalists	---	2.72	.91
11. Have clubs to help people, charity	1.36	---	.91
12. Has to do with government	.91	.91	.91
13. Is for the working class	.45	1.82	.91
14. Wants peace, no foreign entanglements	1.36	---	.91
15. Against government—no rulers	.91	.91	.91

Some of the 72 other meanings children associate with Socialism are:

Want all equal, like Bolshevists, but not so bad.
Radical government, high wages, social reformer.
Big person, lots of money.
Rule of the working people, equal wealth.
Religious people.
One of the candidates.
Want all equal in money and rank.
Want government ownership of railroads, and people more say.
People live together, common interests, community ownership.
Rule entirely by the people, no real law.
Party—wants no war.
Want government control of fundamental industries and a more equal distribution of wealth.
Want all to have an equal share of money, queer, usually foreigners.
Government ownership of railroads.
Men on street corners.
Want everything for self, are against democracy.
Wants no money, no war.
Radical and fiery speaker.
Likes to have all feel equal, isn't in politics.
Want trade stead use of money.
Has wrong ideas, is a heretic.
Believes might is right; is against democracy.
Disagrees with ruler.
Great man talking science—Social Science.
Is not loyal to government.
Has vision of a better government—thinks too much graft.
Party for adults.
Organization, don't own anything, work for someone else.
Social service person.

CHILDREN'S CONCEPTIONS OF BIG BUSINESS

Cores of Ideas of the 15 Most Frequent Responses	Per Cent of Public School Children	Per Cent of High School Children	Per Cent of Total No. of Children
1. Large firm, or concern, or interests	11.30	18.20	13.60
2. Large scale production, cheaper and more	12.20	6.35	10.40
3. Big stores, buildings, factories, banks ..	10.80	3.64	8.46
4. Invest lots of money	8.15	3.64	6.65
5. Person has lots of trade, business on hand	8.61	2.63	6.65
6. Large scale production controlled by few	2.26	10.90	5.14
7. Doing good business, flourishing, etc. ..	2.26	10.00	4.84
8. Factory	4.05	.91	3.03
9. To make treaty	3.16	.91	2.42
10. Large corporation — trade other countries	2.26	4.54	3.03
11. Wall Street with powerful magnates	2.26	3.64	2.72
12. Sell many things—large demand	2.26	1.82	2.11
13. Trusts, monopoly, control by few	1.35	2.63	1.81
14. Increasing business in cities, countries	.91	2.63	1.51
15. Great markets, transportation	.45	2.63	1.21

Some of the 52 other meanings children associate with Big Business are:

To work for money, big job, keep at it.
Transaction between stockholders in Wall Street.
Building business like my father's or Wanamaker's.
Big man in charge of lot of things, has big jobs to figure, lots of worries.
"Don't know."
Starts out in business and makes profits.
Good times—prosperity, happiness, no unemployment.
Big laws in Congress.
Put thru big deal.
Many employed.
The oil scandal is an example of Big Business in politics.
Grocery—good stuff and cheap fruits and vegetables.
Go to important place and talk government.
Operating to capacity.
Large output of large concern.
Big stores, combine, do away with competition.
People get big wages.
Have big stocks.
Business controlled by the government.
Known—have good reputation.
Man straight and square and makes money in business.
The evils of the interlocking directorate—pooling R. R.
Standardization of goods, specialization in work, combines.
Commerce, manufacture, increasing wealth.
Business patronized by the public.
Financiers interested in politics.
Invest in oil wells.
Real estate and insurance.
Business carried on by corporation.
People buying in groups.
Man gets many business papers in office.

CHILDREN'S CONCEPTIONS OF IMPERIALISM

Cores of Ideas of the 15 Most Frequent Responses	Per Cent of Public School Children	Per Cent of High School Children	Per Cent of Total No. of Children
1. "Don't know"	57.00	17.30	43.80
2. Rule by high person	10.40	39.00	19.90
3. In trouble, in peril, in danger	6.35	.91	4.53
4. Desire to have your country rule the world	4.52	2.72	3.93
5. Rule by group or government by rich	---	7.28	2.41
6. Policy extend colonies—trade places over world	---	4.45	1.82
7. Acquiring new territory without consent of inhabitants, for business or politics	.45	3.64	1.51
8. High official person	1.35	1.82	1.51
9. Higher, highest	1.82	.91	1.51
10. King's rights	.91	1.82	1.21
11. Pertains to ruling body—royal family	.91	1.82	1.21
12. Higher-ups, royalty, know most	.91	1.82	1.21
13. Monarchy looking for land to conquer	1.35	---	.91
14. Imperial rule, imperial stamp book	.91	.91	.91
15. People fight for king—in foreign countries	1.35	---	.91

Some of the 36 other meanings children associate with Imperialism are:

Unequal rights, little freedom.
Not dangerous.
Imperative, commanding nature, imposing person.
Supports high ideals.
Japan and China have imperial governments.
Soldiers put selves in peril for country.
Grabbing for place in the sun—sometimes benefits nation.
Get colonies to rule over.
Acquiring territory by settling it.
Imperial court—olden days.
Imperial Elks.
Member of Catholic Church during religious wars.
Socialism.
Struggling to do something.
Big.
Pattern for dress.
People that never went to college.
Head—king or pope.

CHILDREN'S CONCEPTIONS OF CAPITALIST

Cores of Ideas of the 15 Most Frequent Responses	Per Cent of Public School Children	Per Cent of High School Children	Per Cent of Total No. of Children
1. Has lots of money, wealthy	15.40	17.60	16.90
2. "Don't know"	18.00	6.35	14.20
3. Finances concern, takes risk	5.89	24.50	12.10
4. Capital of state or country—where president is	11.30	.91	7.86
5. Head of state or country—president	8.60	2.72	6.65
6. Great man connected with capital	11.30	.91	4.22
7. Head of concern, has large income, factory owner	1.35	5.44	2.72
8. Invests money in stocks and bonds	2.72	1.82	1.41
9. Lends money to start business	1.35	3.64	2.12
10. Controls stock in big business through money	.91	3.64	1.81
11. Rich person, controls workmen, controls purse strings of country	.91	3.64	1.81
12. Opposes socialism—has lots money	.45	3.64	1.51
13. Fat man with money in politics—may do underhand	.91	1.82	1.21
14. Has lots money—does things in government	---	3.64	1.21
15. Man working around capital	1.35	---	.91

Some of the other 40 meanings children associate with Capitalist are:

Man who works for the U.S.
House in Washington.
Make capital letters.
Think lot of their country.
Owns machinery—pays for labor.
Control business—called parasites by socialists.
Controls means of production.
Employer, has money, pays laborers.
Rich—owns manufacture, backs man for president.
A banker.
Makes lots money on big deals.
Man of country that runs business.
Has money and an income tax.
Big Boss.
N. Y. is capitalist of U.S.—Manufacturers, good harbors.
Own's a share—$100.00.
Selfish man.
Bucket shop—lends money.
Money paid for colony.
Patriot—stays on same job.
Palace.

CHILDREN'S CONCEPTS OF AN INDUSTRIAL COUNTRY

Cores of Ideas of the 15 Most Frequent Responses	Per Cent of Public School Children	Per Cent of High School Children	Per Cent of Total No. of Children
1. Has many industries, manufacturing, is civilized	20.80	17.40	19.60
2. Manufacturing country	17.60	14.50	16.60
3. Has manufacturing, commerce	4.06	10.00	6.05
4. Has industries and trade	4.55	2.73	3.92
5. Raises lot of things—fruits	7.28	---	3.62
6. Progress in manufacturing, resources, factories, money, commerce	.45	5.45	2.12
7. Self-sufficient—don't have to depend	.45	5.45	2.12
8. Manufacturing plants—works hard	1.82	1.82	1.81
9. Has factories and business places,	1.35	2.73	1.81
10. Has manufacturing, commerce transportation	2.26	.91	1.81
11. Has manufacturing, cities, trade	1.35	1.82	1.51
12. Manufacturing by machinery—change brought about by Industrial Revolution	1.82	.91	1.51
13. Lots of commerce	2.26	---	1.51
14. "Don't know"	1.81	---	1.20
15. Important, has improvements	1.81	---	1.20

Some of the other 40 meanings children associate with An Industrial Country are:

People educated, help make country better.
Can make nice things, willing to work.
Most people work in industry.
Has great many industries, on large scale
Industrious to make advance.
Has industries, trade, colonies, markets—is in touch with the world.
Exists from industries, is interdependent.
Flourishing country, prosperous.
Makes for needs and exchange.
Manufacturing more than agriculture, needs markets.
Manufacturing greater than agriculture, populated cities, capital and labor problems.
Industry flourishes, good economic conditions.
Has different industries—farming, transportation.
Advances, good climate, progress.
Country specializing in production of implements, textile, clothing.
Buys from all over the world.
Climate fit for industry.
Makes much production.
One whose products needed all over world.
Country trying to raise self to a peak.
Rich—up to date.
Much industry—no manufacturing.
Not free.
Has industries, division of labor.
Manufacturing, trade, advances in science.
Busy country, march to democracy.
Person holds money, speculates.
Efficiency, scientific in manufacturing.
Manufacturing, self-sufficient, has trade.
Some poor, some rich, as now.
Has great resources, uses cheap labor.
Strong country, army.

CHILDREN'S CONCEPTIONS OF AN INTERDEPENDENT WORLD

Cores of Ideas of the 15 Most Frequent Responses	Per Cent of Public School Children	Per Cent of High School Children	Per Cent of Total No. of Children
1. Countries depend for different articles on one another	16.30	45.40	26.00
2. "Don't know"	24.90	17.30	22.38
3. Depends on self	8.34	5.45	6.05
4. Doesn't depend on other countries	3.16	9.10	5.15
5. Countries, factories, inventions depend on each other	2.72	.91	2.11
6. World, partially dependent	1.81	2.72	2.11
7. People depend one on another	1.35	2.72	1.83
8. Every country rules itself	2.72	---	1.83
9. Not independent	1.35	---	.91
10. United with other worlds—not independent	1.35	---	.91
11. Isolation impossible, League of Nations encourages interdependence	---	2.72	.91
12. Nations dependent. Coöperate, freedom of seas	---	1.82	.61
13. Dependent countries, like Philippines	.91	---	.61
14. All countries combined under one rule	.45	.91	.61
15. Small part of the world set aside from the rest	---	1.82	.61

Some of the 39 other meanings children associate with An Interdependent World are:

All democracies.
World containing people more independent.
Not dependent on others—world works together.
Not everybody can take care of selves.
Ignorant can't take care of selves, won't work.
Dependable.
Not independent—stubborn.
Hasn't much agriculture and depends on each other.
Relationship necessary in war and commerce.
International—help each other.
Specialization — people depend on each other.
People civilized and belong to o e nation.
Keep quiet—no trouble.
Depends on someone else.
World not free—barbarian—Mars, Neptune.
Has no ruler.
True World—believes in God.
Can have all want for taking.
Countries help each other in trouble.
Inside—dependent.
Large in trade.
Education.
Not dependent—cannot succeed.
Partly dependent on rain, soil and things.
Try to build up own country, don't care for others.
Self-dependent—has commerce, transportation, intelligence.
Country never owned by another.
Not good to one another —stuck up.
World all by itself.

CHILDREN'S CONCEPTIONS OF AMERICANISM

Cores of Ideas of the 15 Most Frequent Responses	Per Cent of Public School Children	Per Cent of High School Children	Per Cent of Total No. of Children
1. Thinks lots of America, sticks up for it, helps it	8.16	8.20	8.16
2. Patriotic to America	7.24	9.10	7.88
3. Loyalty to country or duty	9.05	2.72	6.95
4. "Don't know"	7.71	2.72	6.02
5. Acts, talks American	8.16	.91	5.75
6. Patriotic, fight, love flag	4.08	9.10	5.75
7. American citizen's quality	5.44	3.64	4.84
8. Good everyday citizen—loyal, fight	5.90	1.82	4.55
9. Americanizing	3.62	3.64	3.63
10. Idea democracy, free speech, government of people	3.62	1.72	3.33
11. American born—typical Yankee	4.98	---	4.84
12. Loyal to standards of America	1.82	5.45	3.02
13. True American, love, join army, fight	2.26	4.55	3.02
14. Give life in war and peace	2.72	2.72	2.72
15. Democracy, government by consent of of governed	1.82	3.64	2.41

Some of the 41 other meanings children associate with Americanism are:

Obey laws and is orderly.
Faith in U.S., belief in its ideals.
American ideas; people voice in government, equal rights, peace.
Patriotic to American ideals; equal rights.
True American—doesn't steal, religious, not afraid of work.
Idealism—doing best in any enterprise.
Customs of America, way dress, use machines.
Understands Constitution — helps government—public affairs.
Spirit of American people, freedom.
Word used to get you to join the army; T. R. used it lots—good if used to mean promote peace, education, industry.
Living up to standards—serve jury, vote.
All for America—love for government, vote, make neighborhood clean.
Waste resources, worship the dollar newest in government—social and economic problems.
Know history, stand by constitution, play fair.
To do like American; eager to learn, obey rules.
Vote for best man intelligently.
Pride for country.
Right in making laws.
Free—right to vote.
Good American—believes in God, don't do wicked things.
Important American patriot.
Clever, brief, quick.
Democracy, education, progress.
Democrat, buck the line hard.
Go-getter, spread commerce.
Representative government.
Shows American teaching.
True to country—don't give secrets away.
America for Americans—love it.

CHILDREN'S CONCEPTIONS OF WAGE EARNER

Cores of Ideas of the 15 Most Frequent Responses	Per Cent of Public School Children	Per Cent of High School Children	Per Cent of Total No. of Children
1. Works for pay	41.20	25.40	36.00
2. Makes a living by working for someone else	14.00	16.40	14.80
3. Earns, supports family	5.90	10.00	7.25
4. Works for Living	6.78	3.64	5.75
5. Laborer in factory	3.62	2.72	3.32
6. Earns fixed wage	3.62	3.64	3.64
7. Depends on work for living	1.81	5.45	3.02
8. Works for a certain amount	3.16	2.72	3.02
9. Makes own money—don't depend on others	2.72	.91	2.11
10. Earns living honestly, faithfully	2.26	1.82	2.11
11. Works, doesn't have to be a poor man	2.72	.91	2.11
12. Works hard and gets money	1.82	.91	1.51
13. Works for another, is paid by week	.45	2.72	1.20
14. "Don't know"	1.35	.91	1.20
15. Sell things in street	.91	---	.61

Some of the other 27 meanings children associate with Wage Earner are:

Draws regular salary at regular intervals.
Works to live—is a member of a labor union.
Earns set pay—no chance to advance.
Works for living—poorer class.
Everybody that can exist, even if in poorhouse.
Average man—not millionaire.
Steady worker—gets right amount of money.
Receives weekly wages from a capitalist.
Does different jobs—not one.
Poor man that works.
Those getting more than $50.00 per week.
Man who works his way in business.
Condemned to work for limited income.
Labors for wage—contrast to capitalist.
Works for living—wages not high.
Earns for family—suffers most by bad laws.
Works for living—helps industries.
Works for certain sum of money—no interest.
All who make up to $100.00.
Works—doesn't have to be a poor man.
Works—gets big wages.
Does good work and gets fair wage.
Clerk or some man—has occupation.
Works for self and others.
Bread earner.
Works for living—poorer classes.
How earns wage—honestly or not.

CHILDREN'S CONCEPTIONS OF PRIME MINISTER

Cores of Ideas of the 15 Most Frequent Responses	Per Cent of Public School Children	Per Cent of High School Children	Per Cent of Total No of Children
1. Goes to foreign countries (ambassador)	12.70	12.70	10.25
2. Leader of country, like president—in England	7.25	13.60	9.35
3. Man in power, really above king–George	9.07	9.10	9.07
4. Minister—preacher	13.60	---	9.07
5. Advises king or president	4.55	10.00	6.35
6. Like Secretary of State — chooses cabinet, all resign if Parliament disagrees	3.62	10.00	5.75
7. "Don't know"	8.15	.91	5.75
8. Head of government—elected	1.35	5.45	2.72
9. Higher than minister—Pope II.	3.16	1.82	2.72
10. Executive government—directs affairs of government	1.81	3.64	2.42
11. Highest man in monarchy—does king's work	1.81	2.72	2.11
12. Head of Church—England	1.81	2.72	2.11
13. Head of Parliament	1.81	1.82	1.82
14. Charge foreign affairs—tries to make his country come out ahead	.91	3.64	1.82
15. High Priest—in church	2.36	.91	1.82

Some of the other 37 meanings children associate with Prime Minister are:

Minister of war—charge of soldiers.
Elected by people—in charge of government in war and peace.
Controls foreign relations—rules at will of people.
Straightens out affairs in England.
Marries people in church.
Nearly as high as king in England.
High in a kingdom—McDonald, Mussolini.
Takes care of laws in England.
High office in England—appointed by king—Lloyd George.
Head of political ministry—if opposed, election remains if wins.
Head of French government.
Ruler of England—like ambassador.
One of chiefs of country—George of foreign affairs.
Man of religious qualities—head of country, makes laws.
Head minister—like governor in U.S.
Takes care of king's property and makes laws in his country.
Next to king—takes part in public affairs—parades, receptions.
Ahead of king—like senator.
Sees colonies are well protected.
Something to do with country—Germany has one.
Minister from different country—prays.
Makes Indians and savages go to church.
Private minister for king and queen.
Not a minister.
Supervises offices of country.
Minister goes to other countries and takes charge of cathedrals.
King or head of country.
Above all and appoints others when die.

CHILDREN'S CONCEPTIONS OF BALANCE OF POWER

Cores of Ideas of the 10 Most Frequent Responses	Per Cent of Public School Children	Per Cent of High School Children	Per Cent of Total No. of Children
1. "Don't know"	13.10	10.90	12.30
2. Remaining power, after work, or war	15.80	4.55	12.10
3. Idea of checks and balances in government or equal rights to people and government	12.65	10.00	11.80
4. Equal power to all	4.07	12.70	6.95
5. Deadlock parties in Congress—Bloc has balance	1.81	8.13	3.93
6. Well balanced—weight even	4.97	.91	3.62
7. Healthy—weight, strength	5.45	---	3.62
8. All nations on equal basis	3.62	2.72	3.33
9. Not to let one king get more power than another—Wolsey's policy	.45	6.35	2.42
10. Kinds of power—electricity, steam, etc.	3.16	.91	2.42

55 other meanings were given.*

* A list of the other meanings children associate with this and the other concepts is on file in Dr. H. O. Rugg's office at the Lincoln School of Teachers College.

CHILDREN'S CONCEPTIONS OF STANDARD OF LIVING

Cores of Ideas of the 10 Most Frequent Responses	Per Cent of Public School Children	Per Cent of High School Children	Per Cent of Total No. of Children
1. Americans have high; foreigners, low. Homes, food, wages	11.30	4.54	9.06
2. "Don't know"	11.30	3.64	8.75
3. Cost of living	6.35	11.80	8.15
4. Ways of living—sanitary, moral, religious	5.45	10.00	6.95
5. Get right food, work, playhouse	7.70	3.64	6.35
6. How class lives—rich, poor	6.35	5.45	6.03
7. Common way of living	7.25	1.82	5.45
8. Way live—eat, clothe, habits, luxuries	3.16	8.15	4.83
9. Certain countries have certain customs of living	2.26	7.28	3.93
10. Ideals of living—rule set for	3.16	5.46	3.93

43 other meanings were given.

CHILDREN'S CONCEPTIONS OF LIBERALISM

Cores of Ideas of the 10 Most Frequent Responses	Per Cent of Public School Children	Per Cent of High School Children	Per Cent of Total No. of Children
1. "Don't know"	30.30	20.80	27.20
2. To give charity freely—generous	18.30	15.40	17.50
3. Have liberty—free	10.40	10.89	10.60
4. Free policy—vote, speech, religion	3.62	6.35	4.52
5. Free country—independent	4.97	2.72	4.22
6. Giving voters more power	2.26	7.28	3.93
7. Where people go to libraries	4.07	---	2.72
8. Stand up for liberty, rights	1.81	3.64	2.42
9. English party — gives people some rights	2.73	1.82	2.42
10. Party in politics—George in England	.45	5.46	2.11

51 other meanings were given.

CHILDREN'S CONCEPTIONS OF MILITARISM

Cores of Ideas of the 10 Most Frequent Responses	Per Cent of Public School Children	Per Cent of High School Children	Per Cent of Total No. of Children
1. Army or Navy training	14.90	15.40	15.10
2. "Don't know"	20.70	2.72	14.50
3. Military academics—learn to be soldiers	7.70	2.72	6.03
4. Wholly interested in military affairs—strict obedience—compulsory training	3.16	8.18	4.83
5. Military rule	3.16	6.36	4.23
6. Soldier life—military service	5.89	.91	4.23
7. Soldiers—or sailors	4.97	1.82	3.93
8. Powers in hand of military people—soldiers shouldn't think much of selves	1.35	8.18	3.63
9. Military—West Point	4.55	.91	3.32
10. Has large army—drilling in preparation	1.81	6.36	3.32

43 other meanings were given.

CHILDREN'S CONCEPTIONS OF CONSERVATION OF NATURAL RESOURCES

Cores of Ideas of the 10 Most Frequent Responses	Per Cent of Public School Children	Per Cent of High School Children	Per Cent of Total No. of Children
1. "Don't know"	20.80	5.45	15.70
2. Save forests, natural wonders	7.25	17.50	10.56
3. Preserve forests, mines for future	4.07	10.00	6.05
4. Save forests, minerals	3.16	10.90	5.75
5. Save forests, animals, minerals	3.62	9.10	5.45
6. Natural resources are rivers, lakes, things found in nature	7.70	---	5.15
7. Save resources—coal, lumber, oil	4.55	4.55	4.56
8. Reserve time for hunting—save forests	4.07	5.45	4.54
9. Protect natural resources — parks, lumber, mineral, Roosevelt against extravagance	2.26	8.18	4.23
10. Country lot resources—hotels, places	5.45	1.82	4.23

48 other meanings were given.

CHILDREN'S CONCEPTIONS OF CONSTITUTIONAL GOVERNMENT

Cores of Ideas of the 10 Most Frequent Responses	Per Cent of Public School Children	Per Cent of High School Children	Per Cent of Total No. of Children
1. Rule by constitution	26.60	42.70	32.00
2. "Don't know"	14.40	1.82	10.25
3. Government run by constitution—laws for people	4.54	10.90	6.65
4. Government by constitution—government of people	4.54	5.45	4.83
5. Republican government	4.07	.91	3.02
6. Like U. S.—run by constitution	3.62	.91	2.72
7. Form of government	4.07	---	2.72
8. Government with given code of laws	1.81	3.64	2.42
9. Right government	3.62	---	2.42
10. Democracy—U.S.	3.16	---	2.12

49 other meanings were given.

CHILDREN'S CONCEPTIONS OF CENTRALIZED GOVERNMENT

Cores of Ideas of the 10 Most Frequent Responses	Per Cent of Public School Children	Per Cent of High School Children	Per Cent of Total No. of Children
1. "Don't know"	29.80	24.50	28.20
2. Strong central government	13.58	3.64	10.25
3. Government by central person	3.62	6.35	4.53
4. Federal government—or main	4.54	3.64	4.23
5. Has central head and all joined by various means	4.07	1.82	3.52
6. King rule—inherits office	2.26	3.64	2.72
7. Rule by group—government centered in a few people	.45	7.28	2.72
8. All powers from one station	3.62	.91	2.72
9. Good government	3.16	.91	2.42
10. Government in middle of state	2.72	---	1.82

73 other meanings were given.

CHILDREN'S CONCEPTIONS OF TRADE UNION

Cores of Ideas of the 10 Most Frequent Responses	Per Cent of Public School Children	Per Cent of High School Children	Per Cent of Total No. of Children
1. Pay dues, have set wages, conditions	7.70	19.90	11.75
2. Trade with different countries	12.70	5.45	10.25
3. Union that trades a lot	12.20	5.45	9.97
4. Union for people who do commerce	9.50	10.90	9.97
5. Coöperation of men for wages	5.87	5.45	5.75
6. Regulate hours and pay	4.98	5.45	5.14
7. Protects workers—set wages	5.45	4.55	5.14
8. Men in business (stores) bound together	3.62	7.28	4.84
9. Union of employees	2.72	5.45	3.62
10. "Don't know"	2.72	4.55	3.33

44 other meanings were given.

CHILDREN'S CONCEPTIONS OF LABOR UNION

Cores of Ideas of the 10 Most Frequent Responses	Per Cent of Public School Children	Per Cent of High School Children	Per Cent of Total No. of Children
1. Protects laborers	27.40	28.60	28.00
2. Protects workers, same as trade union	10.25	15.20	12.60
3. Work for decent salary—strike	4.72	10.30	7.00
4. Workers coöperate to get justice	4.72	9.18	6.55
5. Large group unions—composed of all workers	.79	13.80	6.06
6. Union of hard working people	6.30	1.15	4.20
7. People work under leader	1.57	2.30	1.86
8. Receive certain wages for work	3.14	---	1.86
9. "Don't know"	3.14	---	1.86
10. Place where people can get work	1.57	1.15	1.40

30 other meanings were given.

CHILDREN'S CONCEPTIONS OF RADICALISM

Cores of Ideas of the 10 Most Frequent Responses	Per Cent of Public School Children	Per Cent of High School Children	Per Cent of Total No. of Children
1. "Don't know"	68.80	32.20	56.33
2. Tendency to go to extreme—Russia, socialist	.51	6.80	2.66
3. Extreme progressiveness—quick change	1.02	5.85	2.68
4. Patriot—speaks outright for government	2.52	.98	1.98
5. Endeavor to overthrow government	1.02	3.92	1.98
6. Inside parts of radio	2.04	---	1.34
7. Forming of parties	1.02	1.96	1.34
8. No constitutional government	1.02	1.96	1.34
9. Against government—against rich classes	.51	1.96	.99
10. Harsh (extreme) form of government—independent, Borah	1.02	.98	.99

74 other meanings were given.

CHILDREN'S CONCEPTIONS OF ARISTOCRACY

Cores of Ideas of the 10 Most Frequent Responses	Per Cent of Public School Children	Per Cent of High School Children	Per Cent of Total No. of Children
1. "Don't know"	34.80	8.16	26.00
2. High—rich people, society, wealth	19.80	34.50	24.70
3. Rule by rich	6.35	10.90	7.85
4. Government by a few highers	3.62	10.00	5.75
5. Government with king	3.62	5.45	4.22
6. Noble family—kings, dukes	2.72	6.35	3.93
7. Supreme—absolute government	1.81	.91	1.51
8. Nobility rule—Europe in Middle Ages	1.35	.91	1.21
9. People high in King's favor	1.35	.91	1.21
10. Painters—pictures that made them famous	1.81	---	1.21

56 other meanings were given.

CHILDREN'S CONCEPTIONS OF DIVISION OF LABOR

Cores of Ideas of the 10 Most Frequent Responses	Per Cent of Public School Children	Per Cent of High School Children	Per Cent of Total No. of Children
1. Each person does one part of job	17.20	19.00	17.80
2. Kinds of work	18.95	10.00	16.00
3. "Don't know"	8.15	10.00	8.77
4. Specializing—each does his job	3.62	18.20	8.45
5. In factories—each does different work	4.97	5.45	5.12
6. Do labor work	5.89	1.82	4.52
7. Different industries—R.R., Mining	2.26	4.55	3.02
8. Division into places where industries are	2.72	.91	2.12
9. Different kind of labor in different places	2.26	.91	1.82
10. Difference between union and non-union	1.35	2.72	1.82

57 other meanings were given.

CHILDREN'S CONCEPTIONS OF ANARCHIST

Cores of Ideas of the 10 Most Frequent Responses	Per Cent of Public School Children	Per Cent of High School Children	Per Cent of Total No. of Children
1. "Don't know"	52.50	11.80	40.40
2. Tries to undermine or overthrow government	4.97	12.10	7.80
3. Wants no government—all equal	4.07	10.90	6.55
4. Throws bombs—destroys government	4.07	8.16	5.62
5. Extreme radical—revolutionist	.91	6.35	2.81
6. Rebels against government	1.82	2.72	2.18
7. Has no respect for law	.45	4.55	1.87
8. Change government by unlawful means	---	4.55	1.56
9. Favor monarchy	1.35	.91	1.24
10. Designs building	1.35	.91	1.24

71 other meanings were given.

CHILDREN'S CONCEPTIONS OF CONSERVATIVE

Cores of Ideas of the 10 Most Frequent Responses	Per Cent of Public School Children	Per Cent of High School Children	Per Cent of Total No. of Children
1. "Don't know"	51.60	27.20	45.00
2. Saves things	12.65	15.45	14.10
3. Not wishing to change	.91	18.20	6.90
4. Keep to yourself, quiet sort	2.72	2.72	2.81
5. Economic policies	---	7.28	2.50
6. Political party in England—makes most of opportunities	2.26	.91	1.87
7. Cautious, slow	1.81	1.82	1.87
8. Preserve	.45	4.55	1.87
9. Helping nation—service	2.26	---	1.56
10. Those who think things out	.91	1.82	1.24

45 other meanings were given.

CHILDREN'S CONCEPTIONS OF FOREIGN TRADE

Cores of Ideas of the 10 Most Frequent Responses	Per Cent of Public School Children	Per Cent of High School Children	Per Cent of Total No of Children
1. Trade with foreign countries	48.98	50.00	49.99
2. Exchange goods between countries	19.40	22.60	20.80
3. Import, export	9.05	16.30	11.60
4. Trade with Europe	3.16	.91	2.44
5. Countries trading what have for what need	1.81	1.82	1.82
6. Trade foreign countries—increasing, becoming more dependent	.91	1.82	1.22
7. Trade from other countries	1.35	.91	1.22
8. Trade on other side	1.35	---	.92
9. People that trade with foreign countries	1.35	---	.92
10. Trade with foreign countries—raw materials for manufactured goods	.45	.91	.62

24 other meanings were given.

CHILDREN'S CONCEPTIONS OF OPEN SHOP

Cores of Ideas of the 10 Most Frequent Responses	Per Cent of Public School Children	Per Cent of High School Children	Per Cent of Total No. of Children
1. "Don't know"	15.80	17.50	16.60
2. Door open for business	20.40	5.45	15.65
3. Shop open and working	15.80	1.82	11.40
4. Shop open to union and non-union men	3.16	20.90	9.20
5. Employ non-union men only	3.16	16.30	7.70
6. Booth in street	8.15	1.82	6.18
7. Open to anybody	2.72	6.35	4.00
8. Shop always open	3.64	.91	2.76
9. Position open—no distinction as to color or race	.45	4.55	1.84
10. Work on outside	2.72	---	1.84

33 other meanings were given.

CHILDREN'S CONCEPTIONS OF MONOPOLY

Cores of Ideas of the 10 Most Frequent Responses	Per Cent of Public School Children	Per Cent of High School Children	Per Cent of Total No. of Children
1. "Don't know"	65.50	23.60	54.63
2. Large business puts small out of business —no competition	3.62	18.30	8.56
3. Control trade—Standard	2.26	7.28	3.99
4. Control by one person of at least one thing	1.35	6.35	3.06
5. Person or company control business	3.16	2.72	3.06
6. Control of product	1.81	2.72	2.14
7. Use all up—monopolize—room, towel	.91	2.72	1.52
8. Controlling amount of stock	.45	2.72	1.22
9. Fellow with money buys up all—poor has no chance	---	3.64	1.22
10. Monoplane—or part of aeroplane	1.81	---	1.22

48 other meanings were given.

CHILDREN'S CONCEPTIONS OF PUBLIC OPINION

Cores of Ideas of the 10 Most Frequent Responses	Per Cent of Public School Children	Per Cent of High School Children	Per Cent of Total No. of Children
1. What most people think—majority	14.90	13.60	15.00
2. Opinion of people about laws, trades, government	5.45	10.90	10.18
3. Opinion—through papers, speeches	6.34	12.70	8.57
4. Ideas of people	4.99	12.70	7.65
5. Opinion—vote	8.16	5.45	7.35
6. "Don't know"	7.25	---	4.90
7. What masses believe	7.25	1.82	5.50
8. What people talk about	6.80	3.64	5.85
9. What people think about topics of day	.45	7.28	2.74
10. What people think about public affairs	2.72	1.82	2.42

45 other meanings were given.

CHILDREN'S CONCEPTIONS OF LARGE SCALE PRODUCTION

Cores of Ideas of the 10 Most Frequent Responses	Per Cent of Public School Children	Per Cent of High School Children	Per Cent of Total No. of Children
1. Large quantity	23.50	32.10	22.30
2. Large quantities in factories	11.60	20.00	14.60
3. "Don't know"	7.70	2.72	6.20
4. Makes scales in large numbers	7.70	.91	5.60
5. Weighing large things	5.90	1.82	4.67
6. Large amount—export	2.72	3.64	3.10
7. Large factory—lots product	4.06	.91	3.10
8. Sell great deal of scales	4.06	---	2.79
9. Factory—machine production	2.26	2.72	2.48
10. Produce too much	1.81	2.72	2.17

38 other meanings were given.

CHILDREN'S CONCEPTIONS OF PATRIOTISM

Cores of Ideas of the 10 Most Frequent Responses	Per Cent of Public School Children	Per Cent of High School Children	Per Cent of Total No. of Children
1. Fight for country	17.60	8.17	14.80
2. Loyalty to country	13.20	16.35	14.50
3. Respect laws, flags, fight for country	6.80	10.90	8.05
4. Stick up for country	8.15	1.82	6.17
5. True to country	4.99	6.35	5.57
6. Respect flag, country	2.72	9.10	4.62
7. Do everything for country	3.62	5.45	4.32
8. "Don't know"	5.90	---	4.02
9. Brave, daring—die for country	5.44	---	3.70
10. Love—serve in war	2.26	1.82	2.16

45 other meanings were given.

CHILDREN'S CONCEPTIONS OF PERSONAL RIGHTS

Cores of Ideas of the 10 Most Frequent Responses	Per Cent of Public School Children	Per Cent of High School Children	Per Cent of Total No. of Children
1. Owner's or property rights	19.40	8.18	16.50
2. Free opinion—vote	4.99	9.10	6.65
3. Free speech	3.16	12.70	6.65
4. Talking personal things	6.33	1.82	5.06
5. Free speech, worship, press—civil rights	1.35	9.10	4.12
6. Speech—trial by jury	.91	5.45	2.54
7. Rights everyone should have—no prohibition	1.35	3.64	2.21
8. New rights—obey laws	3.16	---	2.21
9. "Don't know"	2.72	---	1.89
10. Rights one person has over others—cop to stop one	1.82	1.82	1.89

91 other meanings were given.

CHILDREN'S CONCEPTIONS OF INDUSTRIAL REVOLUTION

Cores of Ideas of the 10 Most Frequent Responses	Per Cent of Public School Children	Per Cent of High School Children	Per Cent of Total No. of Children
1. Strike	11.60	22.80	15.45
2. Revolution between industries to see which can produce most	10.40	12.70	11.40
3. "Don't know"	14.90	3.64	11.40
4. From home to factory—inventions	8.60	10.00	9.27
5. Work done by machinery	5.44	6.35	5.88
6. Fight for land, war, trade or manufacturing	5.90	1.82	4.65
7. War of industries	3.16	4.55	3.72
8. Fight for industry	4.52	1.82	3.72
9. Change inventions, methods, division of labor	.91	6.35	2.78
10. Machinery saves labor and time; large scale production is cheaper	3.16	1.82	2.78

56 other meanings were given.

CHAPTER IV

HOW INFORMED, UNINFORMED, MISINFORMED ARE THE CHILDREN ABOUT THE CONCEPTS

Knowing what meanings children from public and high school grades associate with the list of concepts, we are now ready to go beyond and consider the nature of these meanings. Meanings, Kant and his followers to the contrary, can only be acquired through experience. The curious part about meanings is that they are both tools and materials. That is, the tools of thought are themselves thoughts. From a dynamic view of human nature and behavior, to know the nature of the meanings is to know why children have the meanings they have about the concepts. In other words, how were the meanings conditioned; what are, if not the causal factors, at least the factors that do and do not correlate with the children's grasp of the concepts? The relationship of the children's grasp of the concepts with other pertinent factors, which will be considered in the ensuing chapters, will be more intelligible to the reader if they are preceded by an evaluation of the meanings given. Towards this latter task we will now direct our attention.

CLASSIFICATION AND DISTRIBUTION OF MEANINGS

To give a more concise idea of how informed, uninformed, misinformed are the children about the concepts the meanings given were classified as:

A. Superior answers,—showing realization of implications.
B. Reasonably correct answers.
C. Correct fact or particular, but no general idea.
D. Confused answers,—mixtures of right and wrong.
E. Erroneous conceptions obtained by suggestions from the word or words.
F. Other misconceptions.
G. No meaning—("Don't know" answers).

So classified, the meanings children associate with the 31 concepts converted into percentages distribute themselves as follows.

DISTRIBUTION OF MEANINGS

Name of Concept	A*	B	C	D	E	F	G
1. Democracy	3.62	45.90	15.12	2.42	12.09	9.06	11.80
2. Socialism	10.60	6.95	27.80	3.93	26.82	12.09	11.80
3. Big Business	6.95	23.56	44.20	---	9.63	13.60	2.06
4. Imperialism	5.14	4.22	2.72	.65	36.90	6.65	43.72
5. Capitalist	4.84	18.15	25.00	4.84	23.85	9.06	14.20
6. An Industrial Country	6.05	48.70	20.50	2.72	13.30	7.55	1.21
7. An Interdependent World	4.20	29.00	.30	1.51	3.66	39.00	22.38
8. Americanism	7.85	18.15	52.25	---	3.93	11.80	6.02
9. Wage Earner	4.50	51.00	40.00	---	---	3.32	1.30
10. Prime Minister	6.18	35.60	14.20	2.72	19.00	16.30	5.75
11. Balance of Power	5.44	---	1.51	---	70.50	10.25	12.30
12. Standard of Living	5.44	51.10	14.80	4.53	3.03	12.36	8.75
13. Liberalism	1.30	13.30	2.60	.65	47.70	7.25	27.20
14. Militarism	5.44	27.20	39.00	.30	10.88	2.60	14.50
15. Conservation of Natural Resources	10.25	36.60	4.84	1.51	16.30	15.15	15.70
16. Constitutional Government	2.12	18.90	51.90	---	3.02	12.98	10.25
17. Centralized Government	4.55	13.92	20.60	2.41	5.78	24.60	28.20
18. Trade Union	.60	22.70	13.60	.30	51.00	8.50	3.33
18a Labor Union	6.55	25.20	50.50	.93	.93	14.00	1.86
19. Radicalism	1.66	13.03	3.30	7.66	3.33	14.66	56.33
20. Aristocracy	1.51	18.40	35.50	6.67	3.03	8.80	26.00
21. Division of Labor	3.03	32.40	3.34	---	24.50	27.80	8.78
22. Anarchist	.31	12.30	1.87	2.18	6.21	36.90	40.00
23. Conservative	1.55	6.87	.93	2.80	25.20	17.45	45.00
24. Foreign Trade	2.00	36.40	55.40	---	1.31	4.28	.62
25. Open Shop	1.53	16.80	1.53	---	57.60	5.85	16.60
26. Monopoly	12.40	13.40	.31	.62	2.14	16.50	54.63
27. Public Opinion	2.49	35.20	38.60	4.90	9.48	4.58	4.90
28. Large Scale Production	7.10	18.60	33.50	---	19.40	15.00	6.40
29. Patriotism	1.85	18.85	69.10	.93	.31	4.94	4.02
30. Personal Rights	4.12	9.80	18.70	6.97	29.70	28.80	1.89
31. Industrial Revolution	9.26	16.69	2.78	---	53.50	6.19	11.40

* See page 41 for definitions of A, B, C, D, E, F, G.

The foregoing data indicate in a more compact manner than does the information in the previous chapter, how informed, uninformed, and misinformed are the children about the concepts. It also shows how the meanings associated by the children with any one concept compare with the meanings given to any other one concept.

Another indication of the children's grasp of the concepts can be given by a frequency distribution of the children's scores. The score used is described in the next chapter in connection with the discussion on grade to grade development of the children's grasp of the concepts. The highest possible score is 248.

DISTRIBUTION OF CHILDREN'S SCORES ON PERSONAL INTERVIEW

Scores		Frequency
0– 9.99	||||| |	6
10– 19.99	||||| ||||| ||||| |	16
20– 29.99	||||| ||||| ||||| ||||| |||	23
30– 39.99	||||| ||||| ||||| ||||| ||||| ||||| ||||| ||||| |	41
40– 49.99	||||| ||||| ||||| ||||| ||||| ||||| |	31
50– 59.99	||||| ||||| ||||| ||||| ||||| ||||| ||||| |||	38
60– 69.99	||||| ||||| ||||| ||||| ||||| |||	29
70– 79.99	||||| ||||| ||||| ||||| |||||	25
80– 89.99	||||| ||||| ||||| |||	18
90– 99.99	||||| ||||| ||||| ||||| |||	23
100–109.99	||||| ||||| |	11
110–119.99	||||| ||||| |||||	15
120–129.99	||||| ||	7
130–139.99	||||| |||||	10
140–149.99	||||| ||||| |	11
150–159.99	||||| ||||| |	11
160–169.99	||||	4
170–179.99	||||	4
180–189.99	|||	3
190–199.99	|||	3
200–209.99	|	1
210–219.99	||	2
220–229.99	|	1
	Total Number of Children Examined..... Mean .... 74.90 ± 1.70	333

CHILDREN'S REACTIONS TO GENERAL AND PARTICULAR CONCEPTS

Offhand, one is inclined to think that a particular concept like Open Shop is more susceptible to a right or wrong, a dichotomized treatment, than is a more general concept like Liberalism. And therefore one would expect the meanings given a particular concept to be less varied. That is, one would expect to find less superior as well as less inferior meanings associated by children with particular concepts. This we do find to some extent; for a particular fact is more apt to be a reasonably correct answer for Open Shop than for Liberalism, for a particular concept than for a general concept. But, on the whole, the demarcation is more noticeable, not between general and particular concepts, but between concepts known and not known.

Only 1.53 per cent of the meanings given Open Shop, for example' were classified as superior. Only 1.53 per cent of the meanings were classified as showing the knowing of a particular fact but not of a general idea, 16.80 per cent of the meanings were classified as reasonably correct. To 16.60 per cent the concept had no meaning whatever. Of the 63.45 per cent classified as misconceptions, 57.60 per cent were obtained by suggestion from the wording.

How are these facts to be interpreted? The small percentages of meanings classified as superior and as showing the knowledge of a particular fact are, as was expected, small. What accounts for the very large percentage of misconceptions obtained by suggestion from the wording? Is it because of the particularity of the concepts? Does the answer lie in the nature of the words? Or is it because the children do not know the concept and therefore, fall back on any cue they can grasp? An analysis of the meanings, given a more general concept, and, of concepts whose wording is more or less suggestible, will throw light on these questions.

Open Shop is a particular concept whose verbal make-up is very suggestible to children. Let us next analyze the meanings associated by children with a general concept whose verbal make-up is equally suggestible. Of our list Liberalism comes nearest to being such a concept. The meanings given this concept distribute themselves as follows: Superior, 1.30 per cent; reasonably correct, 13.30 per cent; correct fact or particular, but no general idea, 2.60 per cent; confused meaning—mixture of right and wrong, .65 per cent; erroneous conceptions obtained from the suggestion of wording, 48.00 per cent; other misconceptions, 7.25 per cent; and "Don't know" answer (no meaning), 27.20 per cent.

What, if any, are the outstanding differences between this distribution of meanings and the distribution of the meanings of Open Shop? Generally speaking, Liberalism is evidently less known than is Open Shop,—there are less superior, reasonably correct and particular fact answers. There is a difference of 10.60 per cent in the "Don't know" answers. And the misconceptions by suggestion from the wording are almost as numerous (48.00 per cent) as compared with 57.60 per cent for Open Shop. These differences are to be explained first, by the greater difficulty of the concept, Liberalism. The lesser number of misconceptions from the wording is explainable by this fact and also by the difference in the children's reactions to the verbal make-up of the two concepts. In the case of Open Shop the child that did not know

it was more apt to make a good or bad guess, using for that purpose any cue available; and this was most frequently the verbal make-up of the concept. In the case of Liberalism the reaction was similar but with this complication—the greater difficulty of the concept and the "ism" scared away or at least kept a good many of the children from making a guess. Therefore we find more "Don't know" answers and less misconceptions obtained by suggestion from the wording in Liberalism than in Open Shop.

Summarizing, then, it can be said that the analysis of the differences of the children's responses to a particular concept, Open Shop and a general concept Liberalism, both of which have suggestible verbal make-ups, shows: because the differences between the particularized and the generalized answer is less in the case of the more particular concept than it is in the case of the more general concept; therefore, the knowing of a particular or fact is more apt to make for a reasonably correct understanding of the concept in the case of more particular concepts than it is in the case of more general concepts. But the variation shown in the distribution of meanings given to the various concepts is less determined by this difference in the particularity or generality than by the child's past experience with the concept. That is to say, the child when directed to speak out all the ideas that come to his mind when a given concept is mentioned by the examiner reacts to the meanings as conditioned by his experience which the concept has for him when that concept has meaning for him. But when the concept has no meaning to a child—when the child has not previously experienced the concept and, therefore, has not the cues necessary for an intelligent adjustment—he then gets his cues from any other available source. And the most available source is the verbal make-up of the concept. Some other less frequent cues are, the sound of the word; an analysis of the syllables or letters, and the reaction to one or more of the syllables or letters or to what is suggested by those. A case in point is the response of a bright negro (135 I.Q.) to Liberalism. "Liberalism," says he, "means liberty and liberty you cannot get in America. You can get it in Africa." Usually the responses given to the verbal make-up of the concept are wrong. But in such cases as the Wage Earner or Foreign Trade, they are more frequently correct. This is so because the verbal make-up of these concepts "give away" the correct meanings. Wage Earner (wording) suggest "a man who earns wages" or "one who works for wages," etc.

Foreign Trade (wording) suggests "trade with foreign countries," or "exchange products with foreign countries." Whereas, Open Shop (wording) suggests a great variety of erroneous answers which are readily distinguishable from those which are given as reactions to the meaning of the concept. The responses to the verbal make-up of such "give away" concepts as Foreign Trade or Wage Earner are hardly distinguishable from those given as responses to the meanings of the concepts.

An analysis of the meanings children associate with the concept Balance of Power yields further evidence which tends to show that the children react to the concepts in the manner herein described.

Generally speaking, Balance of Power is less comprehended by the children than is Liberalism. Its implications are wide. Its verbal make-up is very suggestive. And a glance at the distribution of meanings shows that more meanings (70.50 per cent) are classified as misconceptions obtained by suggestion from the wording in the case of Balance of Power than are the meanings given to any other one concept. This, in spite of the fact that it is less understood by the children than is Liberalism—as evidenced by the distribution of its meanings, and because of the fact that its verbal make-up does not have an "ism" to scare the children away from guessing.

CHAPTER V

GRADE TO GRADE DEVELOPMENT OF THE CHILDREN'S GRASP OF THE CONCEPTS

Recent works in psychology are emphasizing the distinction between the two phases of development, the two forms of growth; namely, maturity or inner mental growth and growth obtained through learning or experience. To the development of the children's grasp of the concepts, doubtless, both forms are contributory. But, though the capacity to learn influences what is learned and limits it, a knowledge of the concepts surely cannot be called anything else than a "habit" or learned reaction. We will here attempt to indicate the development of the children's grasp of the concepts by reporting the scores made by similarly selected children from various grades on the same test given by the same examiners under similar circumstances. That is to say, development will be reported as found in the grades examined; a study of the influences that have contributed toward this development will be undertaken in a later chapter.

THE SCORE USED IN REPORTING DEVELOPMENT

The numerical score which will be used for reporting the development of the children's grasp of the concepts was obtained by assigning a numerical value to the pupil's response to each concept in accord with the differentiations made by the classification described in Chapter IV, page 41. The numerical values assigned were as follows:

Description	Differentiation	Numerical Value
Superior Answers	A	8
Reasonably Correct Answers	B	6
Correct Fact or Particular, but No General Idea	C	4
Confused Answers—Mixtures of Right and Wrong	D	2
Misconceptions Obtained by Suggestion from Wording	E	0
Other Misconceptions	F	0
No Meaning—"Don't Know" Answers	G	0

A perfect score on all thirty-one concepts, then, would be, $31 \times 8 = 248$. So measured, the scores of the children from the grades tested distribute themselves as shown below.

DISTRIBUTION OF CHILDREN'S SCORES

Range and Scores	4B	5B	6A	6B	7A	7B	8B	T	9B	10B	12B	Total
0– 9.99	1	3	--	2	--	--	--	--	--	--	--	6
10– 19.99	--	12	--	4	--	--	--	--	--	--	--	16
20– 29.99	--	15	1	4	--	3	--	--	--	--	--	23
30– 39.99	1	13	3	15	1	4	3	--	--	1	--	41
40– 49.99	--	4	--	7	1	7	7	--	4	1	--	31
50– 59.99	--	3	--	8	1	14	4	--	8	--	--	38
60– 69.99	--	--	--	4	1	6	5	--	9	4	--	29
70– 79.99	--	--	--	2	--	6	3	1	8	5	--	25
80– 89.99	--	--	--	2	--	3	3	--	5	5	--	18
90– 99.99	--	--	--	--	--	4	6	--	4	9	--	23
100–109.99	--	--	--	--	--	3	1	--	--	6	1	11
110–119.99	--	--	--	--	--	--	4	1	2	4	4	15
120–129.99	--	--	--	2	--	1	--	1	2	1	--	7
130–139.99	--	--	--	--	--	1	6	--	2	--	1	10
140–149.99	--	--	--	--	--	1	4	--	3	--	3	11
150–159.99	--	--	--	--	--	1	4	--	1	1	4	11
160–169.99	--	--	--	--	--	--	1	--	1	1	1	4
170–179.99	--	--	--	--	--	--	--	--	--	1	3	4
180–189.99	--	--	--	--	--	--	--	1	1	--	1	3
190–199.99	--	--	--	--	--	--	--	--	--	--	3	3
200–209.99	--	--	--	--	--	--	1	--	--	--	--	1
210–219.99	--	--	--	--	--	--	1	--	--	--	1	2
220–229.99	--	--	--	--	--	--	--	--	--	--	1	1
N	2	50	4	50	4	54	53	4	50	39	23	333

HOW THE CHILDREN SCORED ON THE INTERVIEW

On the average, how does the development of the grasp of concepts of the children in one grade compare with that of the children in any other grade? To answer this question we must have a measure of central tendency for each grade. And, of course, a measure of variability. As statistical measures for reporting our data we will use those most commonly used and known, namely, the arithmetic mean, a measure of central tendency which is based on all measures, and the probable error of the mean as a measure of variability. "The P.E.", as Kelley reminds us, "has no status or means of calculation independent of the Standard Error; it is simply a measure of deviation, .6745 times as large as S.D."

The means and their P.E.'s of the scores for the grades examined are given here.

MEASURES OF CENTRAL TENDENCY FOR GRADES EXAMINED

	V	VI	VII	VIII	IX	X	XI
No. of Cases ...	50	50	54	53	50	39	23
Mean	27.40	45.59	67.60	97.64[1]	86	95	158.91[2]
P.E.$_M$	.31	2.33	2.34	4.10	3.30	3.00	4.30

[1] Mean for unselected group is 78.60 ± 4.32: See page 55.
[2] See page 50.

MEASURES OF CENTRAL TENDENCY FOR GRADES FROM WHICH ONLY A FEW CHILDREN WERE EXAMINED

	IV	VI A	VII A	Terman
No. of Cases	2	4	4	4
Mean	20	32.5	50	125
P.E.$_M$	1.96	1.49	5.06	13.22

A glance at the foregoing data shows that, on the whole, there is a steady growth of the children's grasp of the concepts from grade to grade. The outstanding discrepancy is Grade VIII. A study of the composition of the fifty-three (53) eighth-grade pupils examined reveals the fact that twenty (20) of the fifty-three (53) have been using the Social Science Pamphlets.[3] The mean for the thirty-three (33) pupils who have not used Social Science Pamphlets is 78.60 ± 4.32. This is a truer measure of the central tendency of an unselected group of eighth-grade pupils. The means and P.E.'s of the eighth-grade pupils who have and who have not used the Social Science Pamphlets will be given here without further comment; a more analytic study of the accomplishments of children who have and who have not used the Social Science Pamphlets will be attempted in a later chapter. The means and P.E.'s for Grade VIII are:

	Pamphlets Used	Pamphlets Not Used
No. of Cases	20	33
Mean	124.50	78.60
P.E.$_M$	3.76	4.32

The mean of 158.91 ± 4.30 for Grade XII is high. That grade promotion, in spite of all its defects, is a selective agency is now a

[3] Described in Chapter VII.

well-ascertained fact. Therefore does it stand to reason that the children who reach Grade XII are either of superior intelligence or more persistent students or both. A higher score, is, therefore, to be expected in Grade XII. But 158.91 ± 4.30, in our opinion, is a higher mean than would be obtained if the scores of a sufficient number of unselected children from Grade XII were averaged. For the fact is, pupils from this grade were examined in the last two weeks of June, 1924, when they were extremely hard to get; for in the schools where the testing was done they are given special privileges during this period. As a result, unlike the procedure followed in the selection of the children from the other grades, we had to depend on volunteers. And, naturally enough, the superior children, the children with more inquiring minds and with greater funds of knowledge, responded to the call. Therefore do we consider the mean too high as a norm for an unselected group of pupils from Grade XII. Our guess is that a score of about 135 would be closer to the truth.

GRADE DISTRIBUTION OF THE MEANINGS CHILDREN ASSOCIATE WITH DEMOCRACY, AN INTERDEPENDENT WORLD, INDUSTRIAL REVOLUTION

Having classified the meanings children associate with each concept as superior, reasonably correct, etc., it would now be an

GRADE DISTRIBUTIONS FOR MEANINGS OF DEMOCRACY

	4B	5B	6A	6B	7A	7B	8B	T	9B	10B	12B	Total
A. Superior .	--	--	--	--	1	--	4	1	1	1	4	12
B. Reasonably Correct	--	2	1	19	1	25	32	2	26	27	18	153
C. Correct Fact	--	8	--	9	1	11	5	1	9	5	1	50
D. Confused.	--	--	--	2	--	2	2	--	2	--	--	8
E. Misconceptions from Wording .	--	9	1	9	1	5	4	--	8	4	--	41
F. Other Misconceptions	1	9	2	4	--	6	3	--	3	2	--	30
G. No Meaning	1	22	--	7	--	5	3	--	1	--	--	39
Total	2	50	4	50	4	54	53	4	50	39	23	333

easy matter to show how the meanings so classified distribute themselves through the grades. We shall select for such treatment only those three concepts from the list which have, perhaps, the greatest social significance; namely, Democracy, An Interdependent World, and Industrial Revolution.

GRADE DISTRIBUTIONS FOR MEANINGS OF AN INTERDEPENDENT WORLD

	4B	5B	6A	6B	7A	7B	8B	T	9B	10B	12B	Total
A. Superior .	--	--	--	--	--	6	3	--	--	1	4	14
B. Reasonably Correct	--	2	--	1	2	13	23	2	21	18	14	96
C. Fact	--	--	--	--	--	--	--	--	--	--	1	1
D. Confused.	--	--	--	1	1	--	--	--	3	--	--	5
E. Misconceptions from Wording .	--	5	1	--	--	3	3	--	--	--	--	12
F. Other Misconceptions	1	27	1	29	--	19	16	2	19	14	3	131
G. No Meaning	1	16	2	19	1	13	8	--	7	6	1	74
Total	2	50	4	50	4	54	53	4	50	39	23	333

GRADE DISTRIBUTIONS FOR MEANINGS OF INDUSTRIAL REVOLUTION

	4B	5B	6A	6B	7A	7B	8B	T	9B	10B	12B	Total
A. Superior .	--	--	--	--	--	4	10	1	3	3	9	30
B. Reasonably Correct	--	--	--	1	--	13	17	2	3	7	11	54
C. Correct Fact	--	1	--	--	--	3	1	--	2	2	--	9
D. Confused.	1	31	1	31	3	25	20	1	34	24	2	173
F. Other Misconceptions	1	5	1	4	--	2	3	--	1	2	1	20
G. No Meaning	--	13	2	14	1	3	--	--	3	1	--	37
Total	2	50	4	50	4	50	51	4	46	39	23	323

CHAPTER VI

RELATIONSHIP OF CHILDREN'S GRASP OF CONCEPTS WITH SOME PERTINENT FACTORS

Knowledge not being an inborn product or process, a positive correspondence between the children's grasp of the concepts with age, grade, intelligence, social status is to be expected. In this chapter we wish to report the extent of the correspondence found. The correlations were calculated by the Pearson Product-Moment formula:[1]

$$r = \frac{Sxy}{\sqrt{Sx^2}\ \sqrt{Sy^2}}$$

CORRELATION WITH MENTAL AGE

The mental ages were determined by the National Intelligence Test. The question of the reliability of the mental ages so determined as compared with the mental ages determined by the Stanford-Binet or any other individual test does not matter here; for the mental ages of all of the one hundred and forty children whose mental ages were compared with their grasp of the concepts were determined by the same standardized test. Nor is the question of the limits of intelligence to the point here; for mental age is an absolute measure of the child's mental accomplishment. The correlation of the children's grasp of the concepts with mental age for 140 cases is $r = .58 \pm .038$.

CORRELATION WITH CHRONOLOGICAL AGE

The correlation between the children's grasp of the concepts with chronological age for the three hundred and twenty-five children whose ages were known is $r = .55 \pm .036$.

CORRELATION WITH OCCUPATIONAL STATUS

The studies of Bridges and Coler[2], Pressey[3], and others demonstrate that there is a close relationship between the father's

[1] Rugg, *Statistical Methods Applied to Education.*
[2] "The Relation of Intelligence to Social Status", *Psychological Review*, Vol. 24, pp. 1-31, Jan. 1917.
[3] *Journal of Applied Psychology*, Vol. 4, pp. 91-96, March 1920.

occupational status and the ability of the child as measured by intelligence tests. This being the case, a high correlation between the children's grasp of the concepts with occupational status is also to be expected. The occupation of the father was taken as an index of the status. As a basis for the classification of occupations, the army results as reported in *Memoirs of the National Academy of Science* (Vol. 15) and Fryer's article in the *School and Society* (Vol. 16, September 1922), were used. The occupation levels, with intelligence as a basis of those occupations not given in either the army data or Fryer's study, were classified in accordance with the occupations given which they most resembled. For example, storekeepers—those who owned candy stores, cigar stores, delicatessens, dry-goods stores, etc, were placed in Group C. Lawyers, journalists, high school teachers, and college teachers were, as Fryer suggests, placed in Group A; authors and bankers were placed in Group B. The correlation between the children's grasp of the concepts and occupational status so obtained was, $r = .36 \pm .034$. Were the occupations better defined and differentiated the correlation would perhaps be higher.

CORRELATION WITH GRADE STANDING

For the calculation of the correlation the results of the children from the lower half of Grades VI and VII as well as that of the four pupils from the special opportunity class were omitted. The correlation between the children's grasp of the concepts and their grade standing is $r = .69 \pm .028$.

CORRELATION WITH EDUCATIONAL AGE

Like mental age, educational age is an absolute measure. It is an absolute measure of a child's educational accomplishment. Of all the children examined the educational ages of but thirty-seven were known. These were all obtained from scores on the same battery of tests which were administered similarly. The correlation of the grasp of the concepts with the educational ages of these thirty-seven children is $r = .80 \pm .039$.

CHAPTER VII

INFLUENCE OF THE CURRICULUM ON THE CHILDREN'S GRASP OF THE CONCEPTS

PRELIMINARY STATEMENT

The close relationship between the grasp of the concepts and grade standing reported in the last chapter seems to indicate that the quality of the responses of an individual on the Personal Interview can be more or less reliably predicted from a knowledge of the educational experience of the individual. In this chapter we wish to report what we consider an indication of the extent of the influence of the social science materials used on the children's grasp of the concepts. We do not have a thoroughly controlled experimental investigation to report. What we do have is a measure of the grasp of the concepts of children who have studied two distinct varieties of social science materials: (1) Children who have had the conventional courses in history, civics, geography, etc., and (2) children who have used Social Science Pamphlets purposed "to form a new unified course in social sciences for pupils in the seventh, eighth and ninth grades".[1]

The list of the concepts used in this study, it should be remembered, was taken from a larger list which was determined by a separate and independent study described in Chapter IX, page 66. Other things being equal, it is, therefore, fair to compare the grasp of the concepts of children taught by these two kinds of materials, and also to use the results as an indication of the superiority or inferiority of one or the other of the materials in the making for a trained and informed intelligence. We have small chains of evidence whereby the contribution of the two varieties of materials towards the children's grasp of the concepts can be measured. Let us investigate these and see whether they diverge or converge.

EIGHTH-GRADE PUPILS WHO HAVE USED TWO KINDS OF MATERIALS

The first bit of evidence revealed itself in the calculation of arithmethic mean of scores made by eighth-grade pupils. In

[1] Quotation from leaflet describing the course.

summarized form the means and their difference are as follows:

Arithmetic mean of the scores of 20 pupils who have used the pamphlets	124.50 ± 3.76
Arithmetic mean of the scores of 33 pupils who have had the conventional courses	78.60 ± 4.32
Difference between the two means	45.90 ± 1.13

Can this difference be explained by the greater intelligence of one group over the other? Let us compare the intelligence of the two groups and see. The mean I.Q. of the thirty-three pupils who have had the conventional course is 104.5 ± 3.53. Of the twenty pupils who have used the pamphlets, the I.Q.'s of but nine are known. It is 101.80 ± 7.35. The difference of 45.90 ± 1.13, in favor of those who have used the pamphlets, then, is larger than can be explained by the small difference in the intelligence of two groups. Aside from the difference in curriculum we know of no other selective agencies at work which can explain this difference.

EIGHTH-GRADE PUPILS WHO HAVE USED ONE KIND OF MATERIAL, HIGH SCHOOL SENIORS WHO HAVE USED THE OTHER KIND —BOTH GROUPS FROM THE SAME SCHOOL SYSTEM

The second bit of evidence is the comparison of the scores of eighth-grade pupils who have used the pamphlets and twelfth-grade pupils who have had the conventional courses in geography, history, civics, economics—both groups from the same school system. Their scores follow:

Mean score of 8 pupils from eighth grade who have used the pamphlets	$153. \pm 7.72$
Mean score of 13 high school seniors who have had the conventional courses	141.92 ± 4.83
Difference	11.08 ± 1.65

The mean of the high school seniors whose scores are being compared here is lower than the mean score of all the high school seniors examined. The mean of the pupils from Grade VIII whose scores are being compared here is much higher than the mean score of *all* the eighth-grade pupils examined. We do not have the intelligence quotients of the members of either group, but we have personally examined members of the two groups and do not hesitate to say that the explanation does not lie in the superior intelligence of the eighth-grade pupils, but rather in the interest evoked from the pupils by the materials in the pam-

phlets. Interest breeds knowledge and knowledge breeds interest. Aside from the evocation of interest by the materials of the pamphlets, we can think of no other selective agency which would explain the very noticeable increase in the grasp of the concepts of the children who have used the pamphlets.

Though some of the pupils who have had the conventional courses showed more interest in and knowledge of the concepts than did some of those who have used the pamphlets, generally speaking, the run of affairs was quite the reverse. That is to say, the pupils who have used the pamphlets, other things being equal, showed a greater interest in the test and had a greater grasp of the concepts and the implications of the questions aroused by these concepts than did the children who have had the conventional course.

To make this discussion more concrete, we shall illustrate with the responses of the best pupil from each group to Democracy, An Interdependent World, An Industrial Revolution. The difference in the responses between these typifies in many respects the differences frequently found in the responses of pupils who have used the pamphlets and of those who have had the conventional courses. To make the interpretation simple we shall also give the responses to these concepts of a pupil of superior intelligence whose score on the concepts approximates the mean of his grade.

RESPONSES OF THE BEST EIGHTH-GRADE PUPIL WHO HAS USED THE PAMPHLETS

Description of Pupil: Age, 11 years; I.Q., unknown; Score on concepts, 220; Occupational status, B.

Democracy[2] is a government where all the people have a voice—is a government of the people, by the people, for the people. Is used in republics. Universal suffrage is one of its principles. All the people have equal rights, no partiality. We need education for a true democracy. Pure democracy can't be had in large government—so have representative democracy. (Pure Democracy—what's that?)[3] Everybody is there, instead of being represented, for example, the town meetings in the New England States, Forum in Rome. In the United States representation is according to population in the House and in Senate according to state. Direct primary, initiative, referendum, recall—are laws which brought democracy forward. Also the Australian ballot. (What's that)—ballot—all candidates on same sheet, so can break parties—adds to privacy. Before raised hands and people with weaker minds influenced by rich employers.

An Interdependent World is where all countries depend on each other. Before war—one section depended on other. Had famines in Germany. Each country dependent on other. When Germany didn't buy from England, there was trouble. People suffered from it. Industrial countries are

[2] Words in italics are the stimulus words.
[3] Words in parenthesis are remarks of examiner.

more dependent—depends more. Agricultural countries don't depend so much. Depend for manufacturing products. (Anything else:) Sections depend on each other; in cities grocer depends on others and so on. If railroad stopped would cause starvation. In New York City people depend a great deal on railroad. The railroad enables specialization.

Industrial Revolution is the time when all the old ways of manufacturing were eliminated, changed, entire change—wonderful new inventions. Started about 1830. Steam engine, plow, spinning machine, power looms. Now have autos, aeroplanes. Inventions still being improved. Industrial Revolution still going on. Industrial Revolution is the change from hand labor to machine labor, and through it, able to have shorter hours. More people brought to city. City can be fed, machines are able to do the work of many men. In that way more food is produced. Railroad is one of great things in Industrial Revolution.

RESPONSES OF THE MOST SERIOUS-MINDED AND STUDIOUS HIGH SCHOOL SENIOR TESTED

Description of Pupil: Age, 18 years, 10 months; Occupational status, C; Score on concepts, 176.

Democracy—the ancient Greece Democracy—also the present American democracy. The word comes from *demo* and *crates*—two Greek words; analyzed it means people and rule, or the people rule. Ruling in a pure democracy directly. In our democracy, being so large, it is by representatives who are elected directly by the people and represent, no doubt, the opinion of the people electing them. This is no doubt the best form of government and I am certainly glad I live in one.

An Interdependent World—even at present the world is rather interdependent in that America could hardly exist without products of the rest of the world. If universal brotherhood should ever be rated higher than it is at present and be more accepted by the nations than the dependency of one nation upon another would be an asset and a benefit to international ethics.

Industrial Revolution—happened in middle of nineteenth century. It was a reaction caused by the introduction of machinery and the division of labor. (Anything else?) This eliminated private craftsmen—brought the great rise of Capitalism. Later labor finding itself unprotected was compelled to organize even as capital had already done.

RESPONSES OF AN AVERAGE EIGHTH-GRADE PUPIL WHO HAS HAD THE CONVENTIONAL COURSES

Description of Pupil: Age, 13 years, 10 months; I.Q., 134; Score on concepts, 87.5; Occupational status, C.

Democracy—people's rights. No prosecution of religion—worship own religion. Speak when you want to—freedom of speech.

An Interdependent World—a world that has to call upon its own resources. Say this world—the new world—the mineral resources, the laboring. The United States as an example—inventions and explorations as examples of a world's own use of its resources.

Industrial Revolution—some sort of a fight between two industrial companies or a strike.

SEVENTH-GRADE PUPILS WHO HAVE USED BOTH KINDS OF MATERIALS

The third bit of evidence is the comparison of the scores of seventh-grade pupils who have used the two kinds of materials.

Of the fifty-four seventh-grade children examined, thirteen are from the Lincoln School and have used the pamphlets; all others are from public schools. The mean of the scores of all fifty-four pupils from the grade is 67.60 ± 2.34. The mean of the thirteen pupils who have used the pamphlets is 105.77 ± 4.25. Not one (zero per cent) of the forty-one pupils who have had the conventional courses either reached or exceeded the mean of the thirteen pupils who have had the pamphlets. The thirteen pupils, doubtless, have on the average higher I.Q.'s. But the large difference in their favor on the grasp of the concepts can hardly be explained by a difference in I.Q'.s, for of the forty-one who have had the conventional courses a number have higher I.Q.'s than the members of those who have had the pamphlets. Yet not one reaches or exceeds the mean of the thirteen on the grasp of the concepts.

THE ACCOMPLISHMENTS OF NINTH-GRADE LINCOLN SCHOOL PUPILS

The fourth chain of evidence is the comparison of the accomplishments of ninth-grade pupils who have used the pamphlets with scores of others from the same grade. Of the fifty ninth-grade pupils examined, six—all from the Lincoln High School—have used the pamphlets. The mean score of all fifty is 86 ± 3.30. The average score of the six who have used the pamphlets is 161.33. The I.Q.'s of the six are as follows: 115, 99, 101, 117, 109, 102; average, 107.16. Recent studies of the intelligence of high school children report the I.Q. of the average freshman at the end of the first year to be close to 100. If the six pupils have an advantage in intelligence, that difference is small. It surely is not sufficient to explain why none of the forty-four pupils who have had the conventional courses either reached or exceeded the mean of the six pupils from the same grade who have used the pamphlets. Again, we know of no other selective agencies at work, aside from the difference in curriculum materials used, which can satisfactorily explain the increased grasp of the concepts of children who have used the pamphlets.

There is, then, a convergence of evidence. In all four cases investigated the children who have used the pamphlets showed a clear superiority in grasp of concepts over those children who have had the conventional courses. In all three cases the difference in intelligence was not sufficient to warrant its acceptance as an explanation for this superiority. In all three cases, there were

no other known selective agencies at work which would explain the difference found. Is it not, then, fair to conclude that, to the extent that the children's grasp of the concepts is an indication of a trained and informed intelligence, the differences herein described demonstrate the clear superiority of the Social Science Pamphlets over the conventional courses, in the making for a trained and informed intelligence? We think so; we say so.

CHAPTER VIII

SPEECH AND KNOWLEDGE REACTIONS OF CHILDREN

It may well be as John Dewey tells us that "till the assumption is banished that stimulus to knowing and the object of knowledge are the same thing, the analysis of knowledge and truth will be confused."[1] But it is not, as the title of the chapter may suggest to some persons, about theories of the relationships that exist between knowledge and speech reactions, or about theories of truth as such that we are concerned with in this chapter. The caption, however, is not entirely a misnomer; for the data we have to report are related to the subject of knowledge and speech reactions.

The Personal Interview, the [talk] method of testing the children's grasp of the concepts used in this study, yields information which enables us to investigate the relationship of the number of words used by the children examined with their grasp of the concepts, the number of correct ideas given, intelligence and other factors. And it is to a study of these relationships that we wish now to direct our attention. Bearing in mind the fact that our procedure is not inducive to mere talk, the mere use of meaningless words by the subject, but gives a mind-set for relevant responses, let us investigate the relationship of the responses given to a call for relevant speech with some pertinent factors.

WORDS AND GRADE-STANDING

In a previous chapter it has been shown that, on the average, grasp of the concepts does increase with increase in grade-standing. How about the number of words used? Does the quantity of words spoken increase with grade-standing and therefore with grasp of concepts? To answer this question we have calculated the mean of the number of words used in response to one concept by the children from the various grades. They are:

Grade	V	VI	VII	VIII	IX	X	XII
Mean	9.10	13.10	17.41	22.03[2]	14.0	14.55	28.37
P.E.	± .55	± .70	± .78	± 1.02	± .92	± 1.16	± 1.85

[1] Dewey, John "Knowledge and Speech Reactions", *The Journal of Philosophy*, Oct. 12, 1922, Vol. XIX, No. 21. [2] See page 55.

The average number of words used does increase with advance in grade-standing. We may infer from this that, generally speaking, the number of words used is an indication of growth in grasp of concepts. But we must not generalize from this that the child who speaks most, therefore knows most. For knowledge is not the only provoker of speech. Emotional outbursts, for example, are also to be considered. The mean of the number of words used by pupils in Grade VIII, which was larger than was expected is more than an indication of superior knowledge. It is also an indication of zest and interest (feeling outcomes) aroused by the materials of the pamphlets in the twenty pupils whose scores have raised the eighth grade mean. All that we know thus far, then, is that on the average there is an increase in the number of words used as we advance from a lower to a higher grade.

IDEAS AND GRADE-STANDING

How do ideas[3] increase with advance in grades? To answer this question we have calculated the mean of the number of correct ideas expressed in response to the thirty-one concepts by the children from the various grades. Smoothed to the nearest whole number, the average number of correct ideas which children from the various grades have of the thirty-one concepts are:

Grade	V	VI	VII	VIII	IX	X	XII
Average	6	11	18	23	18	19	39

Here again, there is gradual growth through the grades. Here again the scores for Grades VIII and XII are too high; the explanation has been given in a previous chapter. As we advance from the lower to the higher grades, we find an increase in the grasp of concepts, an increase in the number of correct ideas expressed, and also an increase in the number of words used. What is the relationship of the number of words used with some of the other factors?

THE RELATIONSHIP OF THE NUMBER OF WORDS USED AND CORRECT IDEAS EXPRESSED

Both the number of words used and ideas expressed increase with advance in grade. What is the correspondence between these increases? The correlation between the two calculated by the Pearson Product-Moment formula is rather high: $r = .69 \pm .019$.

[3] How ideas were counted is described on page 17.

Does this mean that, on the Personal Interview, the more talkative person is necessarily the one who knows most? If that is so, then the correlation between the number of words used and the grasp of the concepts ought to be high.

CORRELATION OF NUMBER OF WORDS USED WITH GRASP OF CONCEPT

The correlation between the number of words used and the grasp of the concepts is low: $r = .31 \pm (.032)$.

This means that the individual who did more talking on the personal interview did generally express more ideas but did not necessarily have a greater grasp of the concepts. This is not a discrepancy, as may appear at first glance. This only means that the number of correct ideas, as counted here, is by itself not a very satisfactory measure of grasp of concepts. The measure used in this study, being based on a fivefold classification which (*a*) credits realization of implications as well as expression of ideas, general or particular (*b*) makes a more clear-cut differentiation between more or less significant ideas through its separate classification of responses which show (1) a knowledge of correct fact or particular, but no general idea, and (2) reasonably correct answers, is a more thorough and, therefore, a superior instrument. A measure which would be based on a consideration of the number of wrong ideas as well as right ideas expressed and also of the number of right and wrong illustrations or examples given, would be superior to one which is based solely on the number of correct ideas expressed. But even such a measure would be inferior to the one used here; for, after all, knowledge is more than a summation of elements (of number of ideas expressed and examples given, etc.) and answers are to be set off from one another, not so much by the quantity of distinctive elements they contain but by the weighting and correlation of these into a distinctive, integrated whole.

All of which is to say that there is a close relationship between the number of words used and the number of correct ideas expressed. There is a low correlation between the number of words used and the grasp of the concepts, and that the two statements are not contradictory.

The correlation being low when the range is wide (Grades IV-XII) a still lower correlation is to be expected when the range

is smaller. To test whether this is true or not, the grasp of the concepts and the number of words used within any one grade for three different grades were correlated:

Grade	V	IX	XII
r	.16	.50	.65
P.E. r	.092	.072	.081

If we assume that speech mirrors thoughts, then, as we see it, the foregoing correlations mean that the thoughts expressed in the case of the fifth-grade pupils examined did not demonstrate a possession of accurate knowledge; hence a low correlation between grasp of concepts and the number of words used in Grade V. The thought expressed by the ninth-grade pupils examined demonstrates the possession of a greater amount as well as a more accurate fund of knowledge; therefore, a larger correlation. In Grade XII for a similar reason the correlation is still higher. The low correlation between the grasp of the concepts and the number of words used by the group, taken as a whole, means therefore that a large number of the members used words which expressed thoughts obtained by suggestion from the wording, by a wrong association of ideas, etc., and did not possess a good fund of relevant knowledge.

TALKATIVENESS AND THE I.Q.

If as a measure of talkativeness we take the number of words used to express knowledge of the concepts (it is to be remembered that speech here was controlled,—was not entirely free association) and correlate this with the I.Q., we get $r = .36 \pm (.049)$.

The relationship between talkativeness in response to a call for relevant speech and intelligence is low. If as a measure of talkativeness would be taken the number of words used by an individual on an average day, the correlation would doubtless be lower. In such an investigation it would, of course, be necessary to evaluate all the speech-provoking stimuli confronting the individuals being examined, before we could generalize about the relationship between verbosity and intelligence.

INDIVIDUAL ASSOCIATIONS

Association-Patterns. The responses, words and meanings, which children associate with the concepts have doubtless been influenced by age, grade, intelligence, social status, etc. The

correlations previously reported indicate the extent of this influence. But the responses are far from being wholly intelligible on that basis. A bright 4B girl, asked to speak out all the ideas that came to her mind when she thinks of Constitutional Government, says, "I have a good constitution; I can eat everything and it wouldn't hurt me." Her I.Q. of 167, her age, her grade have all influenced this response; but none of these taken separately or all of these taken together make her answer as intelligible to us as does the knowledge that her father is a physician, an eye, ear, and nose specialist, and that he recently talked to her about her health.

In testing a large number of children in a high school in a New Jersey town we found that a surprising number gave as one of the associations attached to the concepts Monopoly and Big Business, "The Standard Oil Company". This response becomes intelligible when we learn that the Standard Oil Company's largest refinery which employs thousands of people is located in this town.

Militarism makes a 7B boy think of "countries with military occupations. The spirit of militarism—of war is spreading. In the school a spirit like this is bred, also in public life." And this response becomes more intelligible to us when we learn that the father of the boy is a minister who recently delivered a sermon on the subject of Militarism which the boy had heard.

These examples illustrate the fact that, for the purpose of discovering why children associate the words and meanings which they do with certain concepts, a classification of responses in accordance with the pattern or context which determined these words and meanings is necessary.

By far the largest number of responses given would be classed as text-book patterns. But there would also be a goodly number of responses which would fall under such classifications as these: Family or Home Patterns, Racial, Newspaper, Religious Patterns.

Words, No Ideas; Ideas, No Words. The child who thinks "an industrial country is one which has much industry, but has no manufacturing" can hardly be accused of knowing the meaning of the words he was using.

"A socialist," says a high school sophomore, "is a man who likes to make all people feel equal." So far so good—but when the pupil explains further that "He isn't so much for politics"; we realize that the words associated by the individual with the

concept are quite meaningless, from the point of view of reference, and that they were obtained by suggestion from the verbal make-up of the concept.

The responses of a number of children to some of the concepts show a presence of feeling, an absence of meaning. A few examples to illustrate:

Concept	Core of Response
1. Monopoly	1. People don't like it.
2. Anarchist	2. Don't know—but it's not good.
3. Democracy	3. Some thing longed for by people.
4. Anarchist or Socialist	4. Crazy.

A large number of the responses showed a knowledge of a particular fact, but no general idea of the concepts. In some instances the responses showed that the children memorized a generalization which really had little meaning to them; for it was never particularized in their learning experience. This agrees with the contention of Ogden and Richards to the effect that genetically two tendencies are present in all thought processes; one towards greater definiteness or precision, the other towards wider scope and range.

In a few instances the children had ideas but no sufficient vocabulary and mastery of word-use to express them. A few children connected Radicalism with "harsh form of government". Further questioning by the examiner showed that "harsh" had a peculiar connotation to these children and that they really knew what radicalism meant.

Examples of practically every manner of association described by Woodworth, Thorndike or others in their text books can be found in the papers of the three hundred and thirty-three children examined by the Personal Interview.

PART II

THE DETERMINATION OF CONCEPTS THAT PLAY AN IMPORTANT RÔLE IN CONTEMPORARY LIFE

CHAPTER IX

THE DETERMINATION OF THE CONCEPTS

The central question of this chapter is: What are the concepts which play an important rôle in contemporary life? Other related questions considered are: To what fundamental aspects of society—social, economic, political—are the concepts related? As indicated by the concepts, what are the important modern problems? How complete and reliable is the list of concepts determined?

HOW THE LIST OF THE IMPORTANT CONCEPTS WAS DETERMINED

The Magazines Selected. To determine the basic facts needed in history and geography, Washburne[1] included in his reading materials, popular fiction magazines, such as *Cosmopolitan, Saturday Evening Post, Ladies' Home Journal, Good Housekeeping*, etc., and also newspapers as well as more critical magazines as the *Nation, New Republic, Century*, etc. He included fiction magazines because "they form a very considerable portion of the reading of most Americans". However, Washburne's investigation was set up to determine "common knowledge". Not so ours.

In our investigation we deliberately limited our reading to more critical materials. Since our problem was to determine what the cue concepts of contemporary life are, we selected critical magazines and books that concern themselves with industrial, political and social problems. The magazines selected were critical weeklies, namely: *New Republic, Outlook, Living Age*, and *Manchester Guardian Weekly*.[2]

[1] *Twenty-Second Year Book of the National Society for the Study of Education, Part II*, Chapter VI.

[2] We wish here to emphasize the fact that the reading made for this study is not a complete sampling. Hence, the Social Science Group have it in mind to extend this study.

The distribution of the issues of the magazines was as follows:

a. Weekly magazines over a period of four years 1919–1922 spread as follows:

Names of Magazines	No. of Issue Week in Month	Date (Inclusive)	Months
1. *New Republic*	First	1– 7	Jan., April, July, Oct.
2. *Outlook*	Second	8–14	Feb., May, Aug., Nov.
3. *Living Age*	Third	15–21	March, June, Sept., Dec.
4. *Manchester Guardian Weekly*	Fourth	22–29	Jan., May, Sept., April

b. Weekly magazines for a one-year period (1923); one issue every month as follows: First week in month, *New Republic;* second week in month, *Outlook;* third week in month, *Living Age;* fourth week in month, *Manchester Guardian Weekly.*

Under (*a*) we have four copies of each magazine every year, or sixteen copies of each magazine for the four years,—a total of sixty-four copies. Under (*b*) we have one copy of each magazine every month, or twelve copies of each magazine for the year—and this for the four magazines means forty-eight copies, making a total of 112 issues of magazines studied. The editorials and all special articles in these 112 magazines were the parts studied,—advertisements, book reviews and letters to the editor were omitted.

The end in view in the selection of the distribution of issues under both (*a*) and (*b*) has been to obtain representative samplings and thus to avoid biased data resulting from an over-emphasis of seasonal or transitory items or the prejudices of a one-man or a one-paper point of view. By the distribution in (*a*) every month of the four-year period is covered by at least one magazine; by the distribution in (*b*) every week of the one-year period is covered by one of the four magazines studied. To further assure avoidance of over-emphasis of seasonal influence, count was made not only of the number of mentions but also of the number of issues. How both of these factors are weighted is described later.

The Selection of Books. Because of a lack of available time to study representative samplings of books from the various fields of interest, the intention was to select a small number of more gen-

eral and inclusive books. The following books were selected:

1. *The Great Society* by Graham Wallas
2. *Introduction to World Politics* by Herbert Adams Gibbons
3. *The New Democracy* by Thomas Weyl
4. *America Faces the Future* by Durant Drake

The Great Society gives a psychological treatment of political and social problems. *The Introduction to World Politics* gives an inclusive though brief treatment of international relations. *The New Democracy* stresses industrial relations in a democracy. *America Faces the Future* is the most general book of them all—it treats of contemporary problems.

Description of Procedure. It was the original intention to make a count study of cue concepts, such as An Interdependent World, Democracy, Industrial Revolution, Big Business, Standard of Living, etc. These concepts were used as touchstones for selection. Our list contains all cue concepts found in the reading. Count was made of the words as given and not of the ideas associated with these words.

With a clear idea in mind of what was meant by a cue concept, and with magazines selected and the distribution of issues made, the reading was begun and the information recorded as follows:

NEW REPUBLIC—1919

Name of Concept	Jan. 4	April 5	July 2	Oct. 1	Mentions	No. of Issues
Democracy.....	𝍸 𝍸 𝍸 𝍸	𝍸	𝍸 I	—	39	3

FIG. 1

Figure 1 shows the procedure for one concept for four months of 1919 in the *New Republic.* The procedure for the rest of the concepts as they appeared was the same. Perhaps it will be best to remind the reader here that there was no predetermined list of concepts. The purpose of this part of the study is not to find the frequency of certain concepts, but to determine what the important concepts are, and at the same time to determine the relative order of importance of the concepts mentioned by a count of the number of mentions and of the number of issues in which they are mentioned. The concept was, therefore, recorded on the tabulated sheet the first time it appeared and checked thereafter

when it appeared again. The procedure for the books was the same, except that here there were no issues to count.

THE LISTS OF CONCEPTS—INTERRELATED CONCEPTS LISTED SEPARATELY

After all the reading was completed and all the concepts tabulated as Democracy is in Figure 1, the information was transferred in summarized form to slips of paper (4 x 5) as shown in the first three columns of Figure 2.

DEMOCRACY

Sampling	No. of Mentions	No. of Issues	Ranks on Mentions	Ranks on Issues
1. A	167	40	15	11.5
2. B	86	31	15	10.5
3. C	371		1	
4. A and B	253	71	16	8.5
5. 1919	80	11	6	10.5
6. + 20	115	22	10	11
7. + 21	146	31	12	11
8. C. C.	66	12	4	9
9. 1B	16		4	
10. 2B	7		65	
11. 3B	255		1	
12. 4B	93		1	
13. Total	624		2	
14. B.M.	742		1	
15. W.R.—3				

FIG. 2

Sampling Description

1. A—4 copies yearly; 4 magazines for 4 years; 64 copies in all.
2. B—1 copy monthly, 4 magazines for 1 year; 48 copies in all.
3. C—4 books.
4. A + B—All magazines (112 copies in all).
5. 1919—Magazines for year 1919—16 issues.
6. + '20—Magazines for year 1919, 1920—32 issues.
7. + 21—Magazines for year 1919, 1920 and 1921—48 issues.
8. C. C.—Cross-section sampling of four years reading (1919-1923)
9. 1B—*The Great Society.*
10. 2B—*Introduction to World Politics.*
11. 3B—*New Democracy.*
12. 4B—*America Faces the Future.*
13. Total Number of Mentions.
14. B.M. Unranked = No. of Mentions $\times \frac{\text{Books in which mentioned.}}{2}$
15. Weighted Rank.

To obtain the rankings the slips were, in each case, arranged in order of size of item ranked. The rank order for the item was then marked as shown in the last two columns of Figure 2. To illustrate, let us say we wished to determine the ranking of the concepts on one item—the frequency of mentions in Sampling A. Then the

slips were arranged in order of size on this item. Democracy, for example, is mentioned 167 times. The arrangement of the slips in order of size on the item, frequency of mentions on Sampling A, shows it to have a rank order of 15. Therefore, under the caption "Rank on Mentions" opposite Column 1 A on the slip for Democracy, is marked the number 15. Democracy is mentioned in 40 different issues of Sampling A. An arrangement of the slips for this item shows this to be equal to a rank of 11.5. Therefore, under the caption, Rank on Number of Issues is marked 11.5. Similarly, the other rankings were determined. This procedure necessitated fourteen arrangements to obtain the rankings of the various samplings on the number of mentions, seven to obtain the rankings on the number of issues, and one for the Final Weighted Ranking—twenty-two in all. The ranks are shown in the last two columns of Figure 2.

How Book Mentions Were Weighted. Common sense tells us that the frequency of occurrence aside from other considerations would yield misleading rank orders in many instances. For example, Great Society occurs seventy times in the book of that name and does not occur elsewhere in the readings. Obviously this concept does not deserve as high ranking as another concept which, though mentioned a *lesser* number of times, is mentioned in more sources. The admittance of this qualitative fact raises a quantitative question: How large an increase in the number of mentions is equivalent to what number of sources? The following formula is our answer:

$$\text{B.R.} = \text{number of mentions} \times \frac{\text{number of books in which mentioned}}{2}$$

with the answers obtained arranged in order of size.

Thus, for Democracy this would be:

$$(16 + 7 + 255 + 93) \times \frac{4}{2} = 742.$$

An arrangement of the slips shows Democracy to have a book ranking of 1.

For obtaining this book ranking, various weightings were tried and the foregoing selected as the most satisfactory by three individuals working with the materials. Specific illustrations of the manner in which this formula works are given in Chapter X.

How the Final Weighted Ranking Was Obtained. Following the

same line of reasoning—that is, that the reliability of the ranking would be increased by a consideration of the distribution as well as the frequency of occurrence—the following formula was used to obtain the Weighted Rank, W.R.:

$$\text{W.R.} = \left(\frac{\text{Rank } (a) + \text{Rank } (b) + \text{Rank } (c)}{3} \right)$$

arranged and ranked. This formula gives a weight of one each to: (*a*) rank in accordance with the distribution of the magazines (*i.e.*, the number of issues); (*b*) rank on frequency of occurrence in magazines; and (*c*) weighted rank on book mentions (B.M.)

Thus, in the case if Democracy: (*a*) = 16; (*b*) = 8.5; (*c*) = 1. Hence, W.R. $= \frac{16 + 8.5 + 1}{3} = 8.5$ which, arranged and ranked, equals 3. Then, 3 is the Weighted Rank (W.R.) of Democracy as determined by this formula.

A list of 297 concepts in order of importance was determined by this procedure. A copy of this list is on file in the Library of Teachers College, Columbia University.[3]

INTERRELATED CONCEPTS COMBINED

Considered psychologically, capitalist and capitalism, wage earner and wage system, socialist and socialism, conservative and conservatism, and other such combinations are examples of what may truly be called interrelated concepts. The ideas necessary for an understanding of the concepts, "capitalist" and "capitalism," for example, are inter-connecting, interweaving. The person who has a full understanding of "capitalism" has some understanding of "capitalist". The child who knows what a capitalist is knows something about "capitalism". A fuller understanding of one makes for a fuller understanding of the other. The interweavings are many and direct.

In the aforementioned list of concepts such interrelated concepts are given separately. Both in the teaching process and in the learning process interrelated concepts are closely associated. Because of this, a determination which combines such concepts would have greater practical value to the curriculum-maker.

Accordingly, we rearranged and re-ranked our data to yield such a list. Concepts whose meanings interweave but which have no

[3] Copies of this and other materials used in this study are also on file in Dr. H. O. Rugg's office at the Lincoln School of Teachers College.

common verbal elements were not combined. Specialization, Standardization, and Division of Labor, for example, were listed separately. In short, those combined had verbal as well as conceptual elements in common.

So that this list would be comparable with the previous one, the formula for W.R. was used. The use of this formula made necessary four re-rankings, viz., (1) the mentions, (2) the issues, (3) weighted book mentions, (4) weighted rank.

The list in order of importance as obtained by this procedure follows. The combinations made are indicated.

CONCEPTS IN ORDER OF IMPORTANCE—INTERRELATED CONCEPTS COMBINED

Name of Concepts	Rank	Name of Concepts	Rank
National, -ism, -ist, -ization, Interests	1	Exploitation, Economic by Capitalist, Newly Discovered Region	25
Democracy, Democratic	2	Democratic Party	26
Industrial,- Ills, Waste, Stability, Relations, Resources, Movement, Control, War, Region, Society, State, Democracy, Revolution	3	Immigration	27
		Indemnities	28
		Trade Union, -ism	29
		Neutral, -ity, State, -ization	30
Colonial Expansion, Power, Colonies, Colonization	4	Reparation	31
		Revolutionist	32
Socialism, Socialist	5	Foreign-Policy, Affairs, Ministers	33
Industry (British, Steel, Coal), Seasonal	6	Economic Self-sufficiency, - Freedom, Imperialism, Determinism, Expansion, Interest, Pressure	34
International Question, Arbitration, Relation, -ization	7	Anarchism, -ists	35
		Ministry	36
Commercialism, Commercial-Power, Expansion, Blockade, Ties, Trade, World Trade, World Commerce	8	Sovietism	37.5
		Liberty party	37.5
Public Opinion	9	Autocra-cy, -tic	39
League of Nations	10	Liberalism—liberal	40
Conservatism, Conservative	11	Progress-ive, -ism	41
Diplomatic, Diplomacy, Open	12	Wage- Earner, -System	42
Prime Minister	13	Labor Party	43
Imperial, -ism, -ist	14	Industrialism, -ist, German	44
Treaty of Versailles	15	Monarchy	45
Strike	16	World Powers	46.5
Patriot, -ism, -ic	17	Public Affairs	46.5
Bolshevism, -ist, -iki	18	Standard of Living	48
Radicalism, -ist	19	Individualism, -ist, Organized Industry	49
Communism, -ist, -ic	20		
Republican Party	21	Rehabilitation Europe	50
Capitalist, -ism	22	Big Business	51
Personal Liberties, Rights	23	Near East Question	52
Employment Problem	24	Medievalism—Middle Ages	53

CONCEPTS IN ORDER OF IMPORTANCE—INTERRELATED CONCEPTS COMBINED—*(Continued)*

Name of Concepts	Rank	Name of Concepts	Rank
Washington Conference	54	Oligarchy	102
Reactionary	55	Centralization	103
Secret Negotiations, Diplomacy, Treaties	56	Great Society	104
Militarism, -ist	57	Demobilization	105
Plutocracy	58	Open Shop	106
Labor Union	59	Collective Bargaining	107
Americanism	60	Christianity	108
Aristocracy	61	Sphere of Influence	109
Proletarian	62	Lausanne Conference	110
Frontier Question	63	Small Nationalities (Weaker Powers)	111
Constitutional Government	64	Sabotage	112
Export	65	Pan-Americanism	113
Tariff	66	Zionism	114
Vested Interests	67.5	Bourgeois System	115
World Market	67.5	Transportation	116
Prohibition	69	Policy of Compensation	117
Specialization	70	Open-Door Policy	118
Americanization	71	Large Scale Production	119
Protection Policy	72	Republicanism	120
Trust	73	Dictatorship	121
Conservation Natural Resources	74	Property Rights	122
Ruhr Situation	75.5	I. W. W., -ism	123
Despotism	75.5	Monopoly	124
Organized Working Class	77	Agricultural Depression	125
Monroe Doctrine	78	Materialism	126
Syndicalism, -ist	79	A. F. of L.	127
Sectionalism, Regionalism	80	Ship Subsidy	128
Balance of Power	81	Monarchist's Reactionaries	129
Competitive System	82	Equality Before the Law	130
Interdependence, Dependence on Other Nations for Resources	83	Concentration Business Control	131
Class War	84	Irredentist, -ism, Principle	132
Protectorate	85	Farm Labor	133
Socialization	86	Checks and Balances in Government	134
Political Corruption	87	Paternalism	135
Standardization	88	Social Surplus	136.5
Isolation	89	Inflated Currency	136.5
Bureaucracy, -atics	90	Barbarism	138.5
Government Ownership	91	Imports	138.5
Natural Resources	92	State Rights—Sovereignty	140.5
European Civilization, Europeanizing, Westernizing	93	Collectivism	140.5
Agricultural Region	94	Irreconcilables	142
Party Government	95	Self-sufficing Community	143
Free Trade	96	Chauvinism	144
Backward People	97	Feudalism	145
World Politics	98	Fundamentalists	146
Passive Resistance	99	Third Party	147
Pioneer	100	Trade Route	148
Pacifism	101	Centralized Government	149
		Evolution Doctrine	150
		Academic Freedom	152

CONCEPTS IN ORDER OF IMPORTANCE—INTERRELATED CONCEPTS COMBINED—(*Continued*)

Name of Concepts	Rank	Name of Concepts	Rank
Migration	152	Theocracy	192
Masses—Common People	152	Lockout	194
Prussianism	154	Home Rule	194
Balance of Trade	155	Social Obligation (Responsibility)	194
Proletarian Dictatorship	156.5	Public Service Corporation	196
Social Revolutionaries	156.5	Unearned Income	197
Intellectualism	158	Westward Movement	198
Ambassador	159	Primitive Civilization	199
Factory System	160	Labor Movement	202
Jingoism	161	Spoils System	202
Non-Partisan League	162	Gerrymandering	202
Compulsory Arbitration	163.5	Effective Personal Freedom	202
Boycott	163.5	Trusteeship in Colonial Administration	202
Plebiscite	165	Law and Order	205
Occidental—Japanese Exclusion	166	Pork Barrel	206
Martial Law	167.5	Federalism	207
Modernism	167.5	Community of Power	208.5
Criminality	169	Domestic Affairs	208.5
Union Labor	170	Machine Civilization	210
Consent of Governed	171	Minimum Wage Law	211
Weltpolitik Policy	173	Rapid Increase Population	212.5
Tolerance	173	Command of Sea	212.5
Outlawry of War	173	Darwinism	214
Recall	175.5	Breakdown of Transportation	215.5
Period World Discovery	175.5	Traditionalized Industry	215.5
Parliamentary Government	177	Referendum	217.5
Fascisti	178	Freedom of Seas	217.5
World Relations	179	Division of Labor	219
Factionalism	180	Demagogue	220
Creditor Nation	181	Short Ballot	221.5
Closed Shop	182.5	Power Over Nature	221.5
Capital Levy	182.5	Divine Right	223
Fourteen Points	184.5	Political Prisoners	225
Social Coöperation	184.5	Undeveloped Resources	225
Conquest of Continent	186	Expansionists	225
Bonus	187	Center of Trade	228
Debtor Nation	188	Concentration of Population	228
Bourbonism	189	Gentleman's Agreement with Japan	228
Filibustering	190		
Standpatters	191		

THE RELATIONSHIP OF THESE CONCEPTS TO THE CRUCIAL ASPECTS OF SOCIETY

That the vital, critical, crucial aspects of the "Great Society" are the social, political, economic is more or less taken for granted, nowadays.[4] It goes without saying that the "cruciality" of the aspects cannot be absolutely determined by any one study of frequency of use or even by a study of the distribution of occurrence

as well as the frequency. At best one such study can be no more than an indication of "cruciality"—which should be determined in more ways than one. That a classification of the concepts in accordance with the fundamental aspects of society will yield one indication of cruciality is all the claims we make here. And, remembering that the readings of this study were selected because they critically concern themselves with the vital problems of contemporary life, this surely cannot be considered as a sweeping assumption.

Classifying the Concepts. Any modern psychologist will tell you that when man reacts to even the most minute sensory stimuli the whole body coöperates in the reaction—yet this does not keep him from studying parts of the organism as such. The fact that the doctor tells you that when one is sick he is sick all over, does not keep him from paying attention to special parts. Similarly, the psysiologist in his study of bodily functions. Likewise our talk of life and its aspects. There is no iron-bound classification of the aspects of life. An attempt to classify the concepts bears out this statement. For example, how should Interdependence be classified? Economic? Of course. Social? Certainly. Political? Surely. Try to classify Pan-Americanism, Immigration, and others. They are all three. And we have so classified them. Yet—who has not heard such expressions as these? Politically, Mr. X is dead. Or, he is ruined socially. These conventions of speech show that we can and do for purposes of emphasis or special study, separate the aspects of life. The fact is that not all concepts are so difficult to classify as those here mentioned. Some can be readily classified under one heading. Others are more susceptible to a grouped classification as socio-political or socio-economic. An industrial region, for example, no doubt has social and political bearing as well as economic but that does not argue away the fact that it is predominantly economic. So much so, in fact, that practically all students of the social sciences would so classify it, if to classify it under the captions, social, economic, political, was the given task. About the classification of each of the following; strike, wage earner, collective bargaining and many another there would be similar convergence of opinion. In the broader sense of the word, of course, all political and economic problems are social.

This much said, we can now with some assurance of being

[4] *Twenty-Second Year-Book of the National Society for the Study of Education, Part II*, p. 239.

understood, name the captions for the classifications of the concepts. They are: (1) Sociological, (2) Political, (3) Economic; all the combinations taken two at a time possible, namely, (4) Socio-Political, (5) Political-Economic, (6) Socio-Economic; and (7) all three combined, Socio-Political-Economic.

The Cruciality of the Aspects as Indicated by the Concepts. Thus classified, the 297 concepts divide up as follows:

Aspect of Society	No. of Concepts	Per Cent of 297
Social	7	2.36
Economic	57	19.20
Political	92	30.98
Socio-Political	22	7.43
Socio-Economic	6	2.02
Economic-Political	23	7.75
Socio-Economic-Political	90	30.03

If we now take the three combinations of two's and divide up the credit or percentage equally between the two involved and, in the case of the combination of three taken altogether, divide the credit equally among all three we get: Economic, 45.87 per cent; Political, 36.80 per cent; Social, 17.10 per cent.

This evaluation gives equal weight to a concept with a rank of 297 and one with a rank of 1 or 150, which is obviously, not correct. If, to remedy this we proceed as follows: (1) Obtain the distribution of the concepts under the various classifications in accordance with ranks divided into ranges of 25; (2) weight each range of 25 in accordance with the ratio obtained by comparing the mid-scores of mentions for each range; (3) divide the combinations as previously,—the cruciality of the aspects as indicated by the part it plays in contemporary life as determined by the concepts are: 1. Economic, 45.73 per cent; 2. Political, 34.21 per cent; 3. Social, 18.32 per cent.

THE IMPORTANT MODERN PROBLEMS AS INDICATED BY THE CONCEPTS

There is a vast difference between a determination of the important social problems for curriculum-making or other purposes and a determination of what the important problems are as indicated by the concepts. The methods of attack for determining the modern problems are many and, from the point of view of the

curriculum-maker, complementary. That is to say, for the purpose of constructing a social science course of study, no one of these methods is self-sufficient or complete in itself. A good summary of Basset's method, the analysis of political platforms; Rugg's, the analysis of the books of the "frontier thinkers"; the method of judgment by representative citizens; Sharon's newspaper-magazine method and others are given by Horn in the *Twenty-Second Year-Book of the National Society for the Study of Education, Part II*, Chap. XIV.

Strictly speaking, this part of our study is not a determination of modern problems; it is no more than a classification of concepts under more inclusive captions. It can thus serve not as a determination of problems but as an indication supplementary to those studies which definitely and directly set out to determine what the important modern problems are. The question this part of the study will set out to answer, is: What are the modern problems as indicated by the list of concepts which was determined by a study of critical magazines over a period of five years and four general books as previously described.

The relative order of importance of the contemporary problems as indicated by the concepts grouped as previously described are:

Name of Problem	No. of Concepts	Rank
Politics and Government	72	1
World Affairs	57	2
Domestic Public Affairs	34	3
Industry and Business	33	4
Labor Problems	21	5
Sociological Concepts	20	6
Commerce	16	7
War and Accessories	15	8
Movements and Eras	14	9
Religion	3	10
Biological Concepts	2	11

CHAPTER X

THE COMPLETENESS AND RELIABILITY OF THE DETERMINED LIST OF CONCEPTS

THE COMPLETENESS OF THE LIST OF CONCEPTS

For the purpose of determining a list of concepts, a sampling of reading may be considered as having a perfect completeness when, no matter how much more reading is done, no new concepts are found. Putting it negatively, we can say that a sampling has perfect completeness when it has not omitted any concepts. That is, zero per cent omissions show 100 per cent completeness. In a dynamic society with its ever-changing problems requiring endless readjustments, no amount of reading can yield a list of concepts having a perfect completeness. That our sampling does not, goes without saying. How complete is our sampling? Does it include almost all of the concepts or does it make important omissions? Having no final and complete list of concepts, we cannot, to discover omissions, compare our list with it. But we can determine completeness by comparing samplings of the total sampling with the total and noting the number of new concepts each additional sampling of reading yields. Such a study of concepts included and omitted by the various samplings will serve as a measure of the completeness of the total sampling. It will also indicate the inclusiveness of the various samplings as compared with the total. Table A in summarized form shows the completeness of the various samplings as compared with the total.

Interpretation of Table A. A study of the total omissions of the samplings in Table A shows that from right to left from sampling 1B to (A + B) there is an ever-decreasing number of omissions. (1B) *The Great Society*—the worst sampling makes 218 omissions; (−19) 16 magazines for the year 1919—makes 106 omissions; (A + B) 112 magazines over a period of five years—the best sampling of the total makes only 34 omissions, and of these a good percentage are of the type that are played up by the author of any one of the four books, such as Social Surplus, Plutocracy

TABLE A. COMPLETENESS OF VARIOUS SAMPLINGS

Weighted Rank	112 Issues 5-Year Period	64 Issues 5 Year	48 Issues 3 Year	32 Issues 2 Year	4 Books	16 Issues 1 Year	16 Issues 4 Year	Drake	Weyl	Gibbon	48 Issues 1 Year	Wallas
W.R.	A–B	A	+21	+20	C	+19	C.C.	4B	3B	2B	B	1B
1– 25	0	0	0	0	0	0	0	3	7	2	8	7
26– 50	0	0–	0	0	0	0	0	8	8	4	6	14
51– 75	0	0	0	0	0	2	2	6	6	5	8	18
76–100	0	0	0	0	0	1	5	5	8	13	5	15
101–125	0	1	2	3	2	7	6	12	7	14	9	19
126–150	0	1	1	2	2	6	5	9	16	13	14	21
151–175	0	0	1	3	7	7	12	14	13	11	16	18
176–200	0	4	6	8	12	13	11	15	14	19	14	23
201–225	0	9	13	13	14	16	16	21	19	21	16	17
226–250	6	9	10	10	16	16	17	20	21	19	19	24
251–275	14	17	17	18	9	20	22	21	18	17	22	23
276–300	14	13	16	15	13	18	19	18	17	18	21	19
Total No. Omissions	34	54	66	72	75	106	115	152	154	156	158	218
Per Cent Omissions	11.44	18.15	22.22	24.24	25.25	35.69	38.69	51.17	51.79	52.52	53.19	73.40
Per Cent Inclusions	88.56	81.85	77.78	75.76	74.75	64.31	61.31	48.43	48.21	47.48	46.81	26.60
Rank on Inclusions	1	2	3	4	5	6	7	8	9	10	11	12

by Weyl in his *The New Democracy* or Great Society, Intellectualism, Great Industry by Wallas in his *The Great Society*, etc. That the thirty-four omissions are relatively not very important ones is also evidenced by the fact that the first omission occurs in the range of ranks (226-250). Now the average number of mentions of the concepts ranging from (226-250) is about five. This means five mentions in 112 issues of magazines and four books. The samplings then from right to left are approaching perfect completeness closer and closer. The best sampling makes a fairly close approach. The total sampling, of course, makes a still closer approach; *i.e.*, measured qualitatively, it is a pretty good random sampling. Moreover, it can here be argued that the fact that the best sampling makes its first omission so far down the scale of ranks, shows that the total sampling not only determines a fairly complete list of concepts but that it determines them roughly in the correct order. That is, completeness is a rough qualitative measure of reliability. The question of reliability, however, need not be stressed here, for a more quantitive measurement will be attempted later.

If the purpose of the study were merely to obtain a list of 100 concepts, regardless of the exact order of the importance, what may then be considered a random sampling of reading? A further study of Table A shows that none of the 100 most important concepts as determined by W.R. (our final ranking) are omitted by samplings (A+B), A, (+21), (+20) and C. Of these (+20),(*a*) two-year sampling composed of 32 issues of magazines is the smallest; (*b*) a year sampling of 48 issues does not yield the list.

The 50 most important concepts as determined by our final ranking can be obtained and are all included in samplings (A + B), (A), (+21), (+20), (+19), C, and C.C. The smallest sampling here is one-year reading—16 copies in the year 1919. However, B, a sampling of 48 copies for the year 1923, shows omissions in the first 25 concepts of the final list. True, an inspection of the mentions for the year 1923 shows that year to be a biased one. The League of Nations is mentioned a total number of 951 times—465 of these in the year 1923. The story is similiar for the Treaty of Versailles, Sovietism, Reparation, Labor Party, and a few others. Nevertheless, this does not argue away the fact that a year sampling of no matter the number of copies of magazines yields no list which may be safely considered representative. In this instance 32 copies of a two-year period yields a better sampling than 48 copies

of one year. The proportion in favor of the two-year period is probably greater.

Summarizing, we can say that a study of Table A shows:

1. The selected reading is a fair random sampling for the determination of the list of concepts.

2. The concepts are determined in roughly the correct order. That is, completeness is a rough qualitative measure of reliability.

3. A two-year sampling composed of 32 issues of critical magazines is the smallest amount of reading that yields the 100 most important concepts.

4. For the determination of the 50 most important concepts, it is risky to select a sampling of reading over a distribution of less than two years. In our case 32 copies for the year 1919 did yield the concepts; 48 copies for the year 1923 did not.

THE RELIABILITY OF THE DETERMINED LIST OF CONCEPTS

The question of the reliability of a sampling of reading for the determination of a list of concepts in order of importance may be stated as follows: How closely does the rank of any given concept in one sampling correspond to its rank in any other sampling? That is, for the purpose of determining the relative order of importance of concepts, a sampling of reading may be considered as having a perfect reliability when, no matter how much more representative reading is studied, the rank order as determined is not changed. To study quantitatively the reliability of the list of concepts as determined by the final ranking and to note the relationship of the more important samplings to the whole the following rank correlations were calculated:

Rank Orders Correlated	ρ	r
1. Final Weighted [1] Sampling and Total No. of Mentions (W.R. and Total)	.93	.94
2. Re-ranked Final Sampling and Weighted Book Rank (Re-ranked W.R. and B.R.)	.76	.77
3. Mentions in Magazines and Issues of Magazines $(A + B)_1$ and $(A + B)_2$	.91	.91

[1] Weighted means the distribution as well as the frequency of occurrence has been considered.

Frequency of Occurrence No Adequate Measure of Rank Order.— The correlation of the rank order as determined by a procedure which gives due consideration to the distribution as well as to the

frequency (W.R.) and that determined by a method which considered only the frequency of occurrence is high: $\rho = .93$, $r = .94$. Offhand, this would seem to indicate that ranking, on the basis of frequency of occurrence, was reliable enough a measure for the determination of rank and, therefore, a consideration of distribution was additional but unnecessary work. A more intensive study, however, does not bear out the first impression. A few examples bring out the fallacy of such an assumption.

Name of Concept	No. of Mentions	Sources in Which Mentioned	Rank
Standard of Living	95	35	37
Plutocracy	199	5	136
Imperialism	139	48	18
Patriotism	97	37	23.5
Big Business	82	11	42
Great Society	70	1	210

Consideration of Distribution Gives More Realistic Determination.—These few examples show how misleading would be the ranking if it were determined only by the frequency of occurrence. The 95 mentions of the Standard of Living are distributed in thirty-five sources. The 199 mentions of Plutocracy are distributed in but five sources; and, moreover, 194 of the mentions occur in one source, *The New Democracy*. Which concept plays a more important rôle in contemporary life? That the Standard of Living does, is evident. How much more important? The answer to this question, knowing what we do, is not so evident. A glance at the few examples listed above shows that our formula[2] gives a rank of 37 to the Standard of Living and a rank of 136 to Plutocracy. Similiarly it penalizes or boosts other concepts, depending on the number of mentions and also the distribution.

The relative importance of the concepts as determined by the formula then, though it is arbitrary, yields rankings that are more realistic and more in accord with common sense.

A Consideration of Distribution Increases Reliability.—Correlation or no with the rank order determined solely by the total mentions; a consideration of the distribution is necessary, if a more realistic order is desired. Those concepts that receive a large

[2] The formula used did not consider one source equal to any other source; a three hundred page book equal to a thirty-page magazine, for example. The books and magazines were weighted separately.

number of mentions in a few sources deserve penalizing; those mentioned a smaller number of times but in many more sources deserve boosting. By the use of a formula which considers the distribution as well as the frequency of occurrence these changes are made. The high correlation cannot argue that fact away. On the contrary, the high correlation argues for a reliability of the determination. For it should be remembered that the aforementioned radical changes in rank order are made with the concepts whose number of mentions is out of proportion to the number of sources; by far the larger number of concepts are not so affected. This is attested to by the high correlation between the number of mentions in magazines and the number of issues: $\rho\,(A+B)_1$ and $(A+B)_2 = .91$ Thus, the high correlation between the weighted rank and that based solely on total mentions instead of proving the uselessness of a consideration of the distribution of occurrence is rather proof of the reliability of the determined list.

Another sign of the reliability and reality or the lack of these in the final ranking can be obtained by a comparison of the correlations of (1) The weighted rank and that based on the total mentions in all magazines and (2) The rank on total mentions with that of mentions in all magazines.

Since the final ranking is weighted and the other two are not, any fictitious homogeneity that may arise from the interrelationships would work in favor of the second correlation—that between total mentions and mentions in magazines. The correlations between the weighted ranking and that based on total mentions equals .90; that between the total mentions and mentions in magazines equals .88. This somewhat greater correlation of (1) over (2)—though showing no great superiority of one or the other—is another indication that an increased reality, as well as reliability is obtained by a consideration of the distribution as well as the frequency of occurrence.

Books as Samplings of Readings for the Determination of Concepts. The correlation between the re-ranked final weighted rank and weighted book rank is: $\rho = .76$; $r = .78$. This is relatively low and indicates that hour for hour, page for page, critical magazines are superior to the most general books written by the most "frontier" of thinkers. Critical magazines, that is to say, when used as samplings of reading for the determination of concepts are more random and yield more realistic and reliable results.

A STATISTICAL COMPLEXITY IN THE CORRELATING OF READING SAMPLINGS

Ranking measures introduce a "spurious homogeneity", and the rank method of calculating correlations when in the measures being compared there are some factors present in one and absent in the other yields what is generally referred to as "spurious correlation". When it is individuals or tests that are being compared, this difficulty can be done away with by eliminating or equating those tests or individuals which introduce it. But, as in our case, when the problem is to compare the ranking of concepts determined by one sampling of reading with that of another when some of the concepts mentioned in one are not mentioned in the other—what is then to be done? There are two ways out, neither one entirely satisfactory: (1) Treat zero mentions as scores, rank accordingly and compare all concepts, no matter if they are or are not mentioned in any one sampling. (2) Eliminate from the rankings all the concepts not mentioned in both of the samplings being compared and correlate the ranks thus obtained. Which of these two possibilities of treatment will yield the more realistic and reliable result? The unanimous opinion of three men who have more than a passing acquaintance with educational statistics was to the effect that (1) The first procedure would yield very low correlations which were not representative of the facts, for concepts not mentioned were scored and ranked as if they were; (2) the second procedure would yield higher correlations than were representative of the facts, for the concepts not mentioned in both lists were eliminated and thus an increment of agreement added. To test the validity of these assumptions and to obtain an indication as to the superiority of one or the other of these methods, correlations between the ranks determined by the total sampling and the best sampling of it were calculated in both ways.

Correlation of Total Sampling and the Best Sampling of it. (1) Zero mentions scored and ranked, $\rho = .88$; $r = .89$. (2) Zero mentions eliminated, $\rho = .84$; $r = .85$.

This means that the guesses made by the statisticians are not correct in this instance, and it tends to indicate that it is advisable in work of this nature to score zero mentions. Especially so, since doing so saves the work of re-ranking samplings already ranked. This result, however, does not prove the aforementioned assumptions wrong all of the time. It merely proves them to be false in

this instance, the higher correlation obtained when the zero mentions were scored and ranked can be explained by the mathematical workings of the rank correlation formula. This formula is:

$$\rho = 1 - \frac{6Sd^2}{n(n^2-1)}$$

Now the inclusion of zero mentions as scores makes n larger, and makes $1 - \frac{6Sd^2}{n(n^2-1)}$ larger. Thus the correlation is boosted. In this instance the D and D^2 also favor the first method; for the difference between the rankings of two samplings when zero mentions are treated as scores is less than when the samplings are re-ranked after zero mentions are eliminated.

D and D^2 being smaller, $1 - \frac{6Sd^2}{n(n^2-1)}$ becomes larger. That the formula works in this fashion is attested to by these correlations of ranks: (1) Total number of mentions and mentions in all magazines, $\rho = .87$; $r = .88$. (2) Total number of mentions and mentions in all magazines—for first 100 cases: $\rho = .838$; $r = .84$.

In the first correlation all of the cases are included; which means zero mentions have been treated as scores. In the second correlation there are no omissions; because in the first 100 cases all concepts included in one are also included in the other. And again, where the zero mentions are treated as scores the correlation is higher. From which it can be concluded that similiar results can be expected in instances similiar to those described here. That is to say, if in the comparing of two samplings of readings used for determination of the frequency and importance of concepts the number of zero mentions in one column is relatively large or where the list of concepts not mentioned in one sampling are mentioned a very small number of times in the other sampling, the ρ obtained by calculating with zero mentions treated as scores will be greater than that obtained by re-ranking the concepts after the elimination of those not mentioned in both samplings.

CHAPTER XI

SUMMARY AND CONCLUSIONS

A scientific law is a summary of observed relations, but not all observed relations are reducible to scientific laws. That is why the following statements will hardly do more than briefly recapitulate the questions raised, problems investigated and results found. Where, as in the case of the list of concepts, the results found cannot be given in sentence form, reference will be made to the page or chapter containing the information.

Part I

A study of children's social concepts—their nature and development

Stated in general terms, the subject matter of Part I is concerned with the study of the nature and development of cue concepts (concepts which play an important rôle in contemporary political, economic and social life) in the minds of children.

1. For the purpose of gaining insight into the development of concepts in the minds of children, the Personal Interview is far and away the best of the procedures discussed in Chapter II. By it and by no other method the specific meanings children associate with the concepts can be determined. The results can readily be interpreted and are, therefore, manifoldly more meaningful than those obtained by any of the other methods. Three hundred and thirty-three children from Grades IV through XII were so examined. The specific meanings are given in Chapter III.

2. To give a concise idea of how informed, uninformed, misinformed are the children about the concepts their responses were classified as:

1. Superior answers—showing realization of implications as well as grasp of concepts.
2. Reasonably correct answers.
3. Correct fact or particular, but no general idea.
4. Confused answers—mixtures of right and wrong.

5. Misconceptions obtained by suggestion from wording.
6. Other misconceptions.
7. No meaning—"Don't know" answers.

3. No great differences were found between the children's reactions to general concepts as contrasted to their reactions to particular concepts. More noticeable were the differences found in their reactions to the concepts known as contrasted to concepts not known.

4. Generally speaking, there is a steady development in the children's conceptions from grade to grade. Scores by grade:

Grade	V	VI	VII	VIII	IX	X	XII
Mean	27.40	45.59	67.60	78.60	86.00	95.	158.91
P.E.	±3.05	±2.33	±2.34	±4.32	±2.20	±3.00	±4.30

5. The children's grasp of the concepts was found to correlate positively with five pertinent factors. The highest correlation found was with educational age (.80 ± .039). The correlations with the other factors are: With grade (.69 ± .028); with mental age (.58 ± .038); with chronological age (.55 ± .04); with occupational status (.36 ± .034).

6. That the curriculum has a direct and measurable influence on the children's grasp of the concepts is shown by the data reported in Chapter VIII. This is done by a comparison of the accomplishments of children using two distinct kinds of materials: (1) Conventional courses in geography, history, civics; (2) Social Science Pamphlets—a unified course in social science for the seventh, eighth and ninth grades. The results of all four comparative studies indicate that the children who have used the Social Science Pamphlets are superior, with respect to grasp of concepts, to those who have had the conventional courses in geography, history and civics and that they are so because they have used the pamphlets.

7. Between the number of words used by the children and the ideas expressed by them; between the number of words used and the fund of knowledge possessed by them, what relationships exist? The number of words used and also the number of correct ideas expressed increase with advance in grade-standing. The number of words used correlates .69 ± .019 with the number of correct ideas expressed, but only .31 ± .032 with the grasp of the concepts. The correlation between grasp of the concepts and the number of words used by the children from any one grade deviates

from the correlation obtained for the group taken as a whole. It is larger in the higher grades and smaller in the lower grades. In Grade V the correlation is .16 ± .092; in Grade IX it is .50 ± .072; and in Grade XII it is .65 ± .081.

The high correlation between the number of words used and the number of ideas expressed and the low correlation between the number of words used and grasp of the concepts are interpreted as showing that the number of ideas, taken by itself, is not a satisfactory measure of the group of the concepts. As compared with the measure used it does not distinguish and credit differentially enough, superior answers, showing a realization of implications as well as a grasp of the concepts from the merely reasonably correct answers; reasonably correct answers from answers showing a knowledge of a particular or fact but no general idea, and the like.

The correlations between the grasp of the concepts and the number of words used for the group taken as a whole, for a low grade, and for a high grade are interpreted as follows: In the low grades the correlations are very low because the words expressed are not responses to meanings, are obtained by suggestions from the verbal make-up, etc. In short, many of the words are irrelevant and display a lack of a fund of accurate knowledge, hence there is a low correlation between the number of words used and the grasp of the concepts. In the higher grades the words used are more frequently reactions to the meanings, demonstrate the possession of a larger and more accurate fund of knowledge, therefore, a fairly high correlation between the number of words used and the grasp of the concepts. For the group taken as a whole the correlation is low because many of the words expressed showed a lack of, rather than a possession of, an accurate fund of knowledge. All of which is to say that a large quantity of speech is no safe indication of a large fund of knowledge. The content must be examined.

8. Talkativeness on a given universe of discourse as measured by the number of words used by the children to express their knowledge of the concepts correlates .36 ± .049 with their Intelligence Quotients.

9. To make the specific responses of individuals more intelligible to us than is done by the correlations with educational quotient, intelligence, etc., a grouping of the associations given in accordance with the patterns or contexts which determined them, such as

text-book patterns, family or home pattern; racial, newspaper, religious, etc., is suggested.

Part II

The Determination of the Concepts that Play an Important Rôle in Contemporary Life

A tentative list of the concepts which play an important rôle in contemporary life obtained by a count study of four critical magazines spread over a period of five years and also four books is given in Chapter VIII. Some facts about the list and its determination follow:

1. A more realistic and reliable list of concepts is obtained when in the determination of the rankings consideration is given to the distribution as well as the frequency of occurrence (to the number of issues in which the concepts are mentioned as well as the frequency of mentions).

2. Thirty-two issues of the magazines spread over a period of two years were found to be the smallest sampling of reading which yields the first one hundred concepts of the list.

3. For the purpose of determining the first fifty concepts a two-year sampling of thirty-two issues of the magazines was found to be superior to a one-year sampling of forty-eight magazines.

4. Classified under the fundamental aspects of society, economic, political, social, the concepts group themselves as follows: Economic aspect, 45.73 per cent; political aspect, 34.21 per cent; social aspect, 18.32 per cent.

5. The completeness and reliability of the list of concepts are discussed in Chapter X. Completeness is defined in terms of inclusiveness; a list of concepts is thus considered as having attained perfect completeness when no matter how much more reading is done, no new concepts are found. Reliability is defined in terms of change of rank; a list of concepts is thus considered as having attained perfect reliability when no matter how much more reading is done no change in the rank of the concepts takes place.

6. It should be remembered that the list of concepts herein given is only provisional, that no pretensions of perfect completeness are made for it, and that it is not recommended as a sole determinant of a social science curriculum. It is presented only as a sample of one procedure which may be used to determine curriculum materials more objectively than has usually hitherto obtained.

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VITA

Hyman Meltzer was born in Russia on September 1, 1898. He came to America in September, 1907. He attended and graduated from grammar and high school in Bayonne, N. J. From 1917 to 1921 he attended the University of Illinois. He graduated from this institution with special honors in June, 1921. He registered as a graduate-student in Teachers College, Columbia University in February, 1922, and received the degree of Master of Arts from that institution in February, 1923. He continued his graduate studies in that institution in the following Summer Session and school year. In 1923 and 1924 he was engaged in Americanization work in Bayonne, N. J. In 1924-1925 he gave a course of lectures in Psychology to the nurses of Bayonne Hospital. In this period, he also reviewed a number of books for the *Journal of Educational Psychology* and wrote an article called, "Children's Conceptions of Radicalism" which was published in *School and Society*, March 28, 1925. In the summer of 1925 he was psychologist in the Psychiatric Clinic in St. Louis, Mo.

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